

Neolithic Landscapes

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Peter Topping

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Neolithic Studies Group Seminar Papers 2

Edited by Peter Topping



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Oxbow Books
Oxford & Philadelphia

Published in the United Kingdom in 1997 by
OXBOW BOOKS
10 Hythe Bridge Street, Oxford OX1 2EW

and in the United States by
OXBOW BOOKS
1950 Lawrence Road, Havertown, PA 19083

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Paperback edition: ISBN 978-1-84217-077-9
Digital edition: ISBN 978-1-78570-154-2
Mobi edition: ISBN 978-1-78570-505-2

A CIP record for this book is available from the British Library

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Front cover: Drawing by Peter Topping.

‘The real voyage of discovery consists not in seeking new landscapes but in having new eyes.’ Marcel Proust

Foreword

This book presents the proceedings of a seminar organised by the Neolithic Studies Group, and compliments that published previously under the editorship of Darvill and Thomas (1996) which reviewed Neolithic houses in northwest Europe.

The Neolithic Studies Group comprises an informal gathering of archaeologists whose research interests are focused upon the Neolithic period. The Group was established in the Spring of 1984, and its membership has risen to roughly 250 individuals drawn primarily from the UK, but also with representatives from other nations ranged along the Atlantic coastline. The annual programme comprises a spring meeting held over a weekend at different venues – previously in the UK, Ireland, and the Channel Islands – which enables members to visit sites and consider recent research from that area, and an autumn meeting in London which explores a current topic or hypothesis.

Membership of the Neolithic Studies Group is open to anyone with an active interest in the Neolithic period in Europe. The present membership includes academic staff and students, museums staff, archaeologists drawn from government institutions and those attached to trusts and units. There is no application procedure or subscription to join the Group, members are those currently on the mailing list. Anyone can be added to the mailing list at any time, the only rule of the Group being that names of those who do not attend four consecutive meetings (and do not send apologies or a request to remain on the list to the Group Coordinators) are removed from the membership.

The Group relies on the enthusiasm of its members to organise its annual meetings, and the two coordinators are responsible for the mailing list, finances and the general arrangement of the meetings.

Anyone requiring further information about the Group or its programme of events should contact the coordinators at :

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Preface and acknowledgements

The papers published here are largely those presented at a Neolithic Studies Group (NSG) seminar which took place at the British Museum on Monday 14th November 1994. The seminar was entitled 'Domestic Settlement and the Landscape', and was designed to address the question of how 'ordinary', non-ceremonial or 'domestic' sites related to the wider landscape and their individual topographic settings. Of those papers contributed, eight are reproduced as given at the seminar, two have seen a change of subject (Chapman and Whittle), and an additional two papers have been added to increase the range of regional studies (Barber and Topping). Most of the papers published here were submitted in the Spring of 1996.

The theme was intended to build upon that of a previous seminar, held in 1992, which had reviewed the evidence relating to Neolithic houses (see Darvill and Thomas 1996). The 1994 seminar was designed to set the results of the earlier discussion into a holistic landscape context. It was suggested that Neolithic studies in general were at a point where the wider issues of landscape interaction should be addressed. In effect, what was being suggested by the organiser (PT) was that research should perhaps focus on issues beyond the traditional approaches of functionalism and environmental determinism, and look to what is now becoming known as phenomenology to broaden interpretative perspectives (cf Tilley 1994). To this end speakers were given an advance circular which included a range of possible discussion points for consideration. Amongst these were:

'is it possible to reconstruct how the communities perceived their landscape context, and were there identifiable points of symbolic reference within the landscape';

'how peripheral were the 'ritual landscapes', were ritual/burial monuments integrated amongst the domestic settlements and field systems';

'is it possible to reconstruct the role symbolism played in the structuring of settlements';

all of which were designed to lead to a review of the wider perception of the landscape, its possible zonation and structuring, and finally to

establish whether such concepts might be reflected at the micro-level in settlement form and layout.

Integral to these questions, and of equal interest, were the ways in which communities moved around the countryside, and to what level the contemporary landscape perception – structured or otherwise – led to a varied reaction to different topographic locations. Traditionally much of early human interaction within the landscape has been viewed as an attempt to subjugate nature, but this does not take into account the ethnography of many pre-industrial societies which had a deep respect for the natural order and a firmly rooted desire to live in harmony with it. The subjugation hypothesis can more pertinently be seen simply to reflect theory being driven by a modern (1970/80's) socio-economic bias.

Whether this corpus of papers (to paraphrase one reviewer) marks 'a shift in the mindset of Neolithic Studies, or whether it just reflected the current paradigm, or perhaps paradigms, of the group' (Mason 1995, 78–9) remains to be seen. However, what is evident is that research is beginning to look for alternative explanations for the whole range of landscape interaction during the Neolithic period which takes into account motives other than the purely socio-economic. This inevitably would appear to be leading to the conclusion that land-use and the wider perception of the landscape is, as with Neolithic material culture, heavily regionalised in its 'accent' and that there is little uniformity to human interaction with the physical environment. The challenge ahead is to define the detail of these individual responses.

The editor would like to thank the NSG Coordinators for their support of the seminar, and the British Museum, in particular Ian Kinnes, Ian Longworth and Gillian Varndell of the Department of Prehistoric and Romano-British Antiquities for providing the venue and ensuring the smooth-running of the event. Thanks also go to the Royal Commission on the Historical Monuments of England for their support, particularly Una Sanderson who undertook the administration of the seminar and the assembling and checking of the proceedings, Trevor Pearson for assistance with graphics, and Alastair Oswald and David Field for general support.

Peter Topping
January 1997

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Neolithic landscapes: Identity and definition

Timothy Darvill

INTRODUCTION

Since the later 1970s, the idea of “the landscape” has become widely applied in archaeological research; Neolithic studies being no exception (eg. Smith 1975; Richards 1984; Cleal *et al.* 1995). Both as a technique of analysis, “landscape archaeology” (Aston and Rowley 1974), and as an approach to the understanding of increasingly large and spatially diverse data-sets (eg. Hall and Coles 1994) the development of a landscape perspective has been important and useful. In this paper I would like to take one step back from the humps and bumps of Neolithic field monuments that are traditionally marshalled to give a picture of a Neolithic landscape in order to look more closely, and in an abstract way, at the identity and definition of what is treated as the Neolithic landscape. In so doing, I will focus on the theoretical frameworks that have been used, and question whether the extent to which archaeological understandings of the idea of landscape accord with those used in other related disciplines.

I will argue that archaeologists interested in the matter of landscape have focused for too long on physical and structural dimensions rather than metaphysical and social aspects. The concept expressed by the term landscape is not a synonym for the countryside, but rather something far more powerful which amounts to a generic term for the expression of particular ways of seeing the world; specialized experiences of time and place. As Barbara Bender has recently pointed out (1993,1), the idea of landscape in this sense is not restricted to the emergent capitalist world of western Europe which found the need re-coin the term in the 16th century AD. As a concept it embraces much more widely applicable themes about relationships between people, the realm of ideas and values, and the worlds which they have created for themselves to live in. These things are matters of universal relevance and interest.¹

In the following sections I would like first to summarize two traditional approaches to the archaeology of landscape before reflecting critically on them in the light of socially-based perspectives of the past. In the second part of the paper I will develop a contextual approach to the archaeology of landscape in which emphasis is placed on the coeval structuration of social action and the social categorization and structuring of time and space. An example of the identification of this in the archaeological record is developed with reference to the area around Stonehenge, Wiltshire, during the later third millennium BC where a cosmologically founded four-fold partitioning a space provides the basic framework for the contemporary landscape.

ARCHAEOLOGY AND THE LANDSCAPE

Landscapes as “objects”

Traditionally, archaeologists have viewed the landscape as a physical phenomenon which is essentially a human construction: an object or artefact that can be measured, quantified, and understood in functionalist or positivist terms just like a ceramic vessel or a flint axe. Counting the number of sites in an area and relating them to each other and to the terrain in which they lie has become an increasingly sophisticated task, often involving the use of many different strands of evidence: for example, cropmarks on aerial photographs, earthworks mapped by field survey, depictions on ancient maps, and the texts of historic documents.

Understanding the landscape as an artefact has mainly involved looking at “man-land” relationships in locational or economic terms, emphasizing the way in which people have individually or collectively moulded and shaped the physical appearance of the landscape and, conversely, the ways in which the landscape has affected human activities.

The proceedings of two conferences on the effect of man on the landscape organized by the Council for British Archaeology in 1974 and 1975 illustrate very well this view of landscape as artefact (Evans *et al.* 1975; Limbrey and Evans 1978), and connect it back to the work of Cyril Fox whose book *The Personality of Britain* so eloquently expounded the ways in which the physical geography of the British Isles influenced early populations (Fox 1933).

More than anything else, treating the landscape as an object has drawn attention to just how much archaeology there is in the countryside; ancient features seem to be scattered everywhere. In

those places where archaeological remains are especially abundant, and where a good deal of what was created in the past survives, opportunities for a second approach to the archaeology of landscape presents itself: landscapes as subjects.

Landscapes as “subjects”

Treating landscapes as subjects involves reconstructing earlier states of existence by, in effect, turning the clock back to create an image of a landscape as it might have appeared at some defined stage in its past. A tract of modern countryside becomes a study area which is regressed through the consideration of all possible relevant dimensions and disciplines. The descriptive technologies of mapping and reconstruction drawing provide familiar devices to communicate these ideas as they are used widely by later 20th century western societies to access modern landscapes. By selectively excluding earlier and later elements of the archaeological record a sort of quasi-historical map of an area can be built up to show the disposition of sites and monuments as they might have been arranged at a particular time. Success generally depends on having enough recorded elements or components to fit together into a pattern: such patterns being self-defining in the sense they make themselves through the spatial juxtaposition and stratigraphic interconnection of components.

An increasingly important element of this approach is the matter of environmental reconstruction. In this sphere, attempts have been made, often quite successfully, to chart the way a piece of countryside has evolved in terms of its changing vegetation, soil cover, fauna, and climate. Again, these things can be reconstructed and communicated through mapping and depiction.

The physical manifestation of landscapes rich in archaeology, and well researched in terms of their environment, means that now and again the past can almost be conjured up from the ground and brought to life: this amounts to what is sometimes called the “historic environment” or an “historic landscape”. In such places, it is argued, one is momentarily taken back into history: imagining what it was like in the 18th century when a magnificent ornamental park was set out; or standing in a village flanked by an open field system in the 11th century AD; or roaming among the freshly constructed mound of a Neolithic barrow beside a causewayed enclosure in the fourth millennium BC. But of course, these images and feeling are nothing to do with the Neolithic, or the Medieval period, or the 18th century: what is being experienced is in the present and is based upon a perceptual framework that is entirely the product of our own

socialization and background.

Critique of traditional archaeological approaches to landscape

Treating landscapes as objects or subjects for reconstruction have been important stages in the development of archaeological approaches to landscape, but neither does justice to what, if examined closely, the idea of landscape is really about. Five particular problems can be identified.

First is the continued emphasis on defined sites and monuments. Many landscape studies in archaeology take the form of inventories: lists, maps, and plans of individual monuments. This is done despite the fact that a broad understanding of the idea of social space is well established in archaeological thinking. It is widely recognized that the environment or lifespace which is relevant to any community is much bigger and more extensive than the sort of loci that are most clearly visible archaeologically. People did not only exist within the confines of definable sites and monuments, they occupied territories and regions which had integrity, structure, and symbolic meaning (eg. Folley 1981; Hodder 1982). Archaeological interest focuses not just on what happens within sites but also what is going on, in social terms, at spatial scales well above that.

Second is the idea that archaeological remains will be everywhere in the landscape. The elements which articulate spatial and stratigraphic relationships between areas of dense archaeology may sometimes be extremely subtle; natural features such as rivers, lakes, rock outcrops, and even apparently empty spaces may be as important in the understanding of a landscape as barrows, tracks or any other visible and familiar man-made feature. Apparently empty spaces can be “constructed” and categorized and can, in social terms, sometimes be the most significant (cf. Hubert 1994).

Third is the emphasis placed on the primacy of the physical dimensions of landscape, essentially those things that can be appreciated visually. Stimuli from other senses, and the feelings that they generate, are also significant in experiencing landscape: smells, sounds, textures, tastes, atmosphere. Mental images and constructs are much more important than commonly realized. These may be generated through memories of actual experiences or through secondary perception and the transformation of received images. As Schama (1995) admirably demonstrates, such mental constructs do not physically exist and can never actually be found in reality quite as visualized in the mind, yet they constitute the images which serve to represent what has been or can be experienced.

The fourth area of concern is the lack of attention given to the social dimensions of landscape. Great attention is given to the products of actions, but rarely to the nature or basis of those actions. Landscapes are essentially social constructions not physical constructions. As Daniels and Cosgrove put it: "a landscape is a cultural image, a pictorial way of representing, structuring, or symbolizing surroundings" (1988,1). The creation of a landscape involves the application of value systems to the categorization, appreciation, negotiation, and understanding of the spaces encountered by people as individuals, groups, or whole communities. Taken to its logical extreme, there can by definition be no such thing as a "natural landscape"; the very concept of what is "natural" in contradistinction to what is "not natural" is a social category susceptible to redefinition at any time. Thus as soon as something is categorized as a natural landscape it ceases to be so (if it ever was in the sense of having an independent autonomous existence prior to being recognized) because it has at that moment been brought into the realm of the social. Axiomatic to recognizing the socially constructed nature of landscape is the appreciation that different value systems may be applied sequentially, or in parallel, to the categorization, appreciation, and renegotiation of any landscape. It is this last-mentioned aspect of landscape which gives rise to the contested nature of landscapes that has been so usefully explored by Bender (1992).

The final point to consider here is the matter of dynamics and the question of change. It is sometimes assumed that the normal state for a landscape, as indeed for society generally, is a stable one which is more or less constant within certain bounds. This is a view born of the translation of systems theory and steady-state modelling from the field of electronics to the social sciences. It can be argued, however, that in fact the normal state for landscapes is one of constant change, and in particular change at many different levels and at many different rates. This is one reason why no two experiences of a landscape can ever be the same. Something will always be different: perhaps something as simple as the light or the weather, or perhaps a shift in value sets and the social categories applied to what is encountered. Here the balance between physical existence and social categories is particularly important because social constructs can effectively blind people to physical change that would be clear to an outsider. Thus a hill side which was once covered in woodland may continue to be treated, in social terms, as a wooded place even though the trees have gone. The old order will be perpetuated through such devices as myths, legends,

and place-names which in turn serve to stimulate memories and mental images at odds with what is observed.

Taking into account these problems with the archaeological treatment of landscapes it can be suggested that the very notion of landscape as something created and physically definable, an essentially empirical concept, traps us intellectually and prevents the wider analysis of spatial relations, social relations, social process, and temporal sequence. Instead of seeing landscape as an object or a subject, perhaps it should be seen it as a formal and classificatory concept similar to what the German sociologist Benno Werlen chooses to term space: "a frame of reference for the physical components of actions and a grammalogue for problems and possibilities related to the performance of action in the physical world" (Werlen 1993,3). Landscape in this sense becomes the socially constituted structure or web of values, categories, and understandings that is imposed by a society on its surroundings at any one time; the very context of social existence.

LANDSCAPE AS "CONTEXT"

There are three theoretical aspects which need to be considered in connection with the development of an archaeological approach to landscape as context: the conception of space, the conception of time, and the constitution and archaeological manifestation of social action.

Space

Turning first to the conception of space, the starting point must be an understanding of its existence. The space which can be experienced by individuals and social groups is quite different from the kind of space discussed by physical scientists. Social space is essentially continuous in that it has no edges, finite in the sense that there is only ever so much of it, permanent in the sense that (normally) it has always been there and will continue to be there in the future, and spatially variable in terms of differences in the conditions obtaining from place to place.

All societies operate in such space, the conceptualization, partitioning, bounding, defining and valuing of which is the product of individual and collective socialization and the expansion of mental as well as physical horizons. Tuan, in his book *Space and Place* (1977), attempts to understand what is experienced through all the human senses during the development of a comprehension of space at different stages of life. He concludes that attachment to an understanding of place is necessary for survival and that in this the symbolism of place and the attachments formed by what happens in a

place are crucially important. Thus during early childhood space is generally small scale and essentially domestic but that during later childhood and adolescence space becomes differently conceptualized. By adulthood an understanding of space which is shared with other members of the community is completely formed. That understanding, however, is not really about distance or physical geography so much as about the compartmentalization of space according to socially defined categories.

This partitioning is known as “regionalization” and it refers to the zoning of space according to attributed meaning. At its most generalized, regionalization takes place in relation to routinized social practices such that certain things only occur at certain times in particular places, both timing and location being determined by social structure. But regionalization also occurs at a smaller scale, for example when individuals encounter one another or in the determination of public and private space. By reference to socially defined categories it is possible to see space as a framework which develops into zones such as front and back, dark and light, clean and dirty, sacred and profane. The basis for the various classifications that exist is often embedded in a symbolic code or belief system, as seen for example in the cosmological ordering of space or its conceptualization with reference to the human body, the body of a totemic beast, or the movements of celestial bodies.

Time

Time, like space, is often assumed to be theoretically unproblematic, but, time is also present only as a framework. Geoff Bailey has argued for a duality within time, on the one hand as objective process and on the other as subjective representation (1987). In the former an event or happening defines a duration and, when such events are chained or contingent, an order or structure. This contrasts with time as represented by concepts or units which are related to social context. As with the conceptualization of space, time is often structured to reflect symbolic codes and beliefs and may again be tied to cosmological order.

Social action

Time and space together relate to the third element, social action. Originally articulated in the late 19th century by Max Weber (cf. Cohen 1968, 96) and others, the idea of social action has been developed and extended during the present century (eg. Parsons 1951; Parsons and Shils 1951) and remains a key element of sociological

theory even if its understanding is now vastly different from that of its early advocates (Giddens 1984). At its most simple, action can be seen as intentional attempts to affect or prevent change in the world. The question of intentionality is what sets action apart from the more normatively constituted concept of behaviour; with social action intentionality is prescribed within socially defined boundaries. Thus actions involve society rather than individuals alone simply because no-one can stand free of social relations.

Archaeologically, it is the accomplishment of social action, the physical prosecution of activities affecting or preventing change, that is manifest as material culture. In this sense the landscape is not a passive object representing the cumulative sum of actions, but rather a set of structures and devices which are, as long as they exist as socially meaningful entities, active as agents in the prosecution of social action.

Space, time and social action provide the essential elements of a potentially powerful model of landscape applicable in the present and explorable in the past through archaeology. In it the landscape does not physically exist, although some aspects of it have visible physical expression. Rather landscape is a time dependent, spatially referenced, socially constituted template or perspective of the world which is held in common by individuals and groups and which is applied in a variety of ways to the domain in which they find themselves.

Time-space-action models in archaeology and beyond

To date, time-space-action models have not found extensive application in archaeology, and even where applied have not been extensively articulated.¹ However, in other disciplines the idea of landscape, although not always expressed as such, is frequently dealt with as a social or representational phenomenon. The very word landscape finds its origins in artistic representation and was introduced into English from the Dutch *landskap* for many years the word continued to refer only to pictures. Indeed, as Howard has pointed out (1991, 1), in Britain landscapes are almost invariably imagined in elevation in a way which is close to the word's artistic origins.

In the field of human geography ideas of time and space have been of interest for some decades, as too, although in a more limited way, the whole matter of aesthetics and "natural beauty" (Cosgrove 1989; Howard 1991, 15; Hodder 1989). Of some interest to archaeologists and sociologists is the work of Torsen Hägerstrand and what has become known as "time-geography" (Hägerstrand 1975). The means of

integration is, however, mechanistic and favours time and space over the contribution of social action. Anthony Giddens has strongly criticized it for treating individuals independently of social settings and has argued for greater attention to overall context (1984, 116–9).

Numerous anthropological studies illuminate the way in which space is conceptualized and subdivided in a range of societies so as to produce socially meaningful places and landscapes. They also highlight the way that physical objects (ie. material culture) relates to concepts of space and place. Studies such as those of the Trobriand Islanders by Glass (1988) and the Pirá-Paraná Indians of Columbia by Hugh-Jones (1979) are particularly relevant, and, along with others, serve to amplify aspects of the cross-cultural links between space, place, landscape and social action which are particularly relevant to archaeological analysis. Two deserve mention here.

First, the categorization of space is generally systematic and the rules which inform the understanding of each category are often founded in a received cosmology. Wheatley (1977) describes the cosmological basis for the planning of ancient Chinese cities, Coe (1993, 174–90) the lay out of Maya ceremonial centres in central America, and, rather controversially, Bauval and Gilbert (1994), look at the arrangement and cosmological referencing of the pyramids at Giza in Egypt. On the basis of these and many other studies, the equation between interpretative schemes or cosmologies and structure in the archaeological evidence is no surprise, and should, as Ian Hodder has advocated (1987), be considered an integral and essential part of archaeological inquiry.

Second, is a recognition that the categorization of space is often “nested” in the sense that arrangements apply at several different levels simultaneously as interpretative schemes impinge on almost every dimension of life. Thus, for example, patterning in the subdivision, arrangement, and meaning of space may, at the same time, be found in the decorative schemes applied to material culture, the arrangement of spaces and disposition of activities in the home, the layout of a settlement, and patterns of behaviour in the landscape as a whole. This means that if patterns can be detected strongly at one level they may also be applicable at others.

Inevitably, certain limitations inherent to the nature of archaeological data have to be taken into account when applying time-space-action models to ancient landscapes. Although individual actions and momentary events can sometimes be glimpsed, more common is evidence of repetitious action and patterning in the material culture which facilitates such actions. Equally, Bailey (1987)

has argued that the temporal index used by archaeology is not the same as that used by other social scientists because archaeology is concerned with the long term rather than the short term. In archaeology, time inevitably becomes conflated. Likewise, with space, the categories most visible in the archaeological record are those fixed by material culture as the physical structuring of space, for example in provisions to control and manipulate movement through it. In the following section the case of the Stonehenge landscape, Wiltshire, is explored briefly.

LANDSCAPE AND THE SOCIAL USE OF SPACE: STONEHENGE

Stonehenge in central southern England is probably the most well-known prehistoric monument in Europe. Studies of the area around about have revealed a wealth of monuments and these have been mapped and catalogued on several occasions in recent decades (RCHME 1979; Richards 1990; Cleal *et al.* 1995).

The Stonehenge landscape can be viewed as an object, the most recent reshaping of its form being the construction of special tourist facilities at Stonehenge itself and changes in agricultural regime by the National Trust who now own much of the farmland around about. Likewise, the Stonehenge landscape has been treated as a subject. Four main phases to its evolution can be identified and summary maps of arrangements at each have been prepared to show what might be termed a succession of “relict cultural landscapes” (Richards 1990, figs. 157-160; Darvill *et al.* 1993).

Neither of these approaches extends beyond the descriptive analysis of the archaeological remains in the Stonehenge area. To explore the broader issues of landscape as context, I would like to take the situation in the later Neolithic / Beaker period, around 2600–2000 BC. This is conventionally equated with Atkinson’s Phase II at Stonehenge itself (Atkinson 1979, 72), Phase 3.i in the revised chronology of the site (Cleal *et al.* 1995, 167 *ff.*).

The facts of the archaeology are that for this period Stonehenge itself was undergoing a period of reconstruction with the introduction of the first stone settings (the bluestone circles) in the centre of the site, replacing whatever wooden features had stood there before in a manner reminiscent of the structural sequence at many similar sites (Darvill 1987(b), 94). The visual appearance of the Phase 3i setting remains speculative, although the presence of a number of cut and shaped bluestones around the site hints that it may have been more spectacular than its archaeological footprint suggests. A lintelled structure is certainly possible, and the tongued and grooved stones

may suggest an elaborate focal screen of some sort. Recent work has cast doubt on the geometrical regularity of the bluestone circle as originally proposed by Atkinson, Cleal and collaborators concluding that it may have been set out as a semi-circle or even a three-sided open rectangular arrangement with rounded ends (Cleal *et al.* 1995, 188). What is, however, clear is the elaboration of the putative entrance with a line of up to five stones flanking the entrance whereas the remainder of the circuit is marked by pairs of stones. This entrance follows the midsummer sunrise axis, an alignment that had first been defined at the site during Phase 2 (c.2900-2600 BC).

Stonehenge was not the only site receiving attention at this time. Much else was happening in the surrounding landscape and Stonehenge became the focus of a tightly clustered ring of sites (Figure 1.1).

The Stonehenge Cursus was built about 1km north of Stonehenge around 2700 BC and continued in use for some centuries.² One of the longer cursus in Britain with a length of about 3km, the two ends are intervisible on the ground, but because its central section crosses a shallow valley the ends are not always visible from within. At the east end is an earlier long barrow. The cursus is not straight, but subdivisible into three straight segments set slightly off-line to one another (Stone 1948; Christie 1963).³

Projecting the line of the cursus eastwards there is a standing stone (the Cuckoo Stone), removed from its original position in relatively modern times. Beyond this again, on the same alignment, is Woodhenge, probably established around the middle of the third millennium BC (Cunnington 1929; Wainwright and Evans 1979).

North of Woodhenge is Durrington Walls, a massive henge-enclosure 490m by 468m with opposed entrances to the NW and SE. The southeastern entrance opens to the River Avon. Radiocarbon dates suggest that the enclosure was first constructed 2800–2400 BC (Wainwright and Longworth 1971).

Of more or less the same date is Coneybury Henge to the southeast of Stonehenge. This small henge measures 40m along its greatest axis (Richards 1990, 109–158). Other monuments in the area include pits containing grooved ware, and burial monuments associated with beaker pottery. Some flint mines are known to the northwest of Durrington Walls, and are again probably of this period (Booth and Stone 1952).

A number of the monuments just mentioned incorporate within their structure a regular alignment towards the north-eastern skyline. The precise descriptive geometry of these structures is far less

important than the regularity of their orientation and the fact that the orientation itself can be related to the rising position on the skyline of the midsummer sun. Woodhenge, Coneybury, and Stonehenge show this arrangement very clearly.

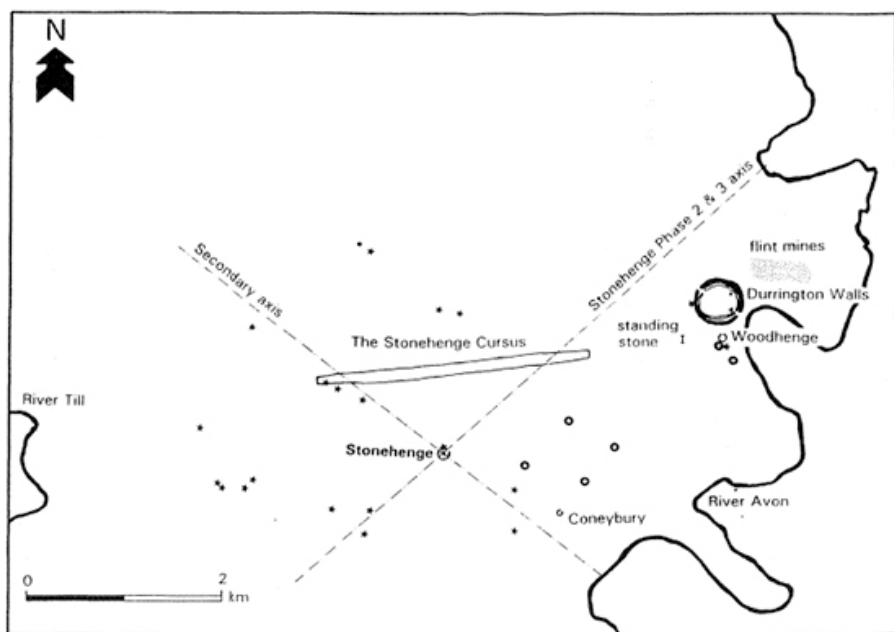


Figure 1.1: Map of the Stonehenge area, Wiltshire, showing a notional four-fold sectoring of the landscape. Solid stars indicate beaker burials.

However, the midsummer sunrise axis is not the only axis visible. There are four key positions in the solar cycle: midsummer sunrise and sunset, and midwinter sunrise and sunset. The angle between midsummer sunrise and midwinter sunrise is about 80° , the same as between midwinter sunset and midsummer sunset (Hoyle 1972, 25–7). Risings are to the east, settings to the west. The mid-summer sunrise has the same alignment as the midwinter sunset even though the two events happen opposite each other on the skyline as visible from the centre of the circle; the same applies to the mid-winter sunrise and the mid-summer sunset. Thus the primary, and dominant, axis at Stonehenge is the SW to NE line reflected in the orientation of the entrance. The secondary axis, roughly SE to NW, is hard to identify because of the rather partial plan of the Phase 3i settings. However, there are two unusual features belonging to this phase, WA3654 to the northwest and WA2321 to the southeast. Both are large stoneholes, and WA2321 at least stands immediately outside the defined line of the bluestone setting; the same may apply to W3654.⁴ The axis created by these two features bisects the main axis at 80° near the

notional centre of the bluestone setting (see Cleal *et al.* 1995, fig. 80). This second alignment is well represented at Durrington Walls where it is marked by the alignment of the two entrances into the enclosure.

This simple solar scheme, more or less in the form of a cross with a primary and secondary axis, can be projected onto the landscape outwards from Stonehenge to create two potentially significant axes defining four quarters. It is not suggested that this arrangement was itself actually marked in the countryside around Stonehenge; the partitioning of space was more akin to a cognitive map which was known to those who created the landscape. However, one direct manifestation may be represented by the way that the projected alignments intersect the line of the cursus at just the places where its width changes slightly: it is narrower at the ends compared with the central part.

This linear quadruple partitioning of space also finds expression in the distribution of monuments and artifacts. The eastern sector contains sites directly associated with feasting (Durrington Walls and Coneybury Henge). As Table 1.1 shows, over 85% of Grooved Ware findspots lie in the eastern sector, while 62% of Beaker pottery findspots lie in the north and west sectors. Peterborough pottery is widely scattered through all the sectors. The highest proportion of beaker-age burials (58%) lie in the western sector (Table 1.2), while henges and henge enclosures are found only in the eastern and southern sectors. Flint-mining and extensive flint-knapping are known only in the eastern and southern sectors.

Table 1.1: Findspots of principal Late Neolithic / early Bronze Age ceramics

	North	East	South	West
Peterborough Pottery	4	5	8	6
Grooved Ware	0	12	2	0
Beaker pottery	7	4	8	13

Individual sites around Stonehenge also perpetuate one or other of the significant solar axes. As already noted, Durrington Walls has the SE to NW axis, while Coneybury has a midsummer sunrise axis adjusted to accommodate the different configuration of hills. Both Stonehenge and Durrington Walls are known to have beaker age burials on the outside of their boundaries (Evans 1983; Wainwright

and Longworth 1971, figure 2), interestingly both to the right of anyone approaching the entrance from the outside (cf. Figure 1). At Woodhenge a human burial marks the centre of the site where the two axes notionally cross (Cunnington 1929). An analysis of the spatial distribution of finds from the postholes which formed the timber structure within Woodhenge by Joshua Pollard revealed a high incidence of pig bones and the presence of carved chalk cups in the east sector suggests feasting (Pollard 1992). The eastern sector also seems to have been the focus of interest for the deposition of items such as scrapers, knives, arrowheads, and bone pins in the Southern Circle at Durrington Walls (Richards and Thomas 1984, 202).

Overall, therefore, a common set of arrangements and alignments seen to have significance in the landscape as a whole and in the lay out and design of sites of the period.

An interest in solar events seems to be common to all these patterns, and represents the only uncontested astronomical alignments at Stonehenge itself. Interest in the sun became common over much of Europe during the mid third millennium BC, especially in relation to beaker cultures and their successors (Coles and Harding 1979, 175 *ff.*). However, solar cosmology also occurs in non-beaker contexts too. Colin Richards (1993) has examined its implications with reference to a range of dwellings, sacred structures, henges and tombs in Orkney. He found a high correspondence between architectural form and a putative central place for the sun in the lives of the communities who built the structures. In Ireland the developed passage graves of the Boyne Valley embody solar alignments: Newgrange, for example, was constructed so that the midwinter sunrise illuminated the central chamber (O'Kelly 1982, 122–5).

Archaeologically it is impossible to get at the stories and myths that lie behind the solar cosmologies, even though the main element is visible. The farthest we can go is perhaps the development of patterns of association from the disposition of monuments in the landscape and objects in monuments. In this case, two sectors, the eastern and western, seem especially significant. The eastern sector was strongly associated with sunrise, new beginnings, life, light, fertility, feasting, water, and the earth. The western sector with sunset, endings, death, darkness, quietness, and the sky. [Table 1.3](#) provides a provisional summary of these associations in schematic form. Movement between and within different areas may, at certain times at least, have been stricdy controlled. The Stonehenge Cursus has a very interesting position in this landscape as it runs through the western, northern and eastern sectors. Its terminals lie firmly in the east and west sectors,

but, as already noted, there are subtle changes in its alignment at exactly the points where the principal axes partitioning the landscape pass through it. Seen in the context of a social landscape, the cursus may in this sense be seen as a defined route between two key sectors: perhaps even a pathway for the soul from life to death.

Table 1.2: Incidence of selected monument classes

	North	East	South	West
Henges	0	2	0	0
Henge-enclosures	0	1	0	0
Flint mines	0	1	0	0
Beaker burials	1	2	2	7

Table 1.3 - Provisional late Neolithic cosmological scheme

	(NORTH)	
	Earth	
	Cold	
(WEST)	Sun	(EAST)
Sunset	Hearth	Sunrise
Death	Transformation	Life
Burial places		Settlements
Darkness		Light
Winter		Summer
Fire		Water
		Feasting
	(SOUTH)	
	Sky	
	Warm	

CONCLUSIONS

In this paper I have tried to argue that traditional approaches to landscape based only on such matters as a consideration of “man-land relationships” are rather barren at anything more than a descriptive level, and that more sophisticated social models are now needed to further interpretation and expand work into other aspects of landscape studies. Spacetime-action models such as that outlined here provide one starting point for new kinds of investigation, and at the very least open up new fields for consideration. It is recognized that the picture of the Stonehenge landscape is still imperfect and there is much

analysis still to do. However, by exploring the social dimensions of landscape many new and exciting possibilities open up for the archaeological analysis of the social use of space. The focus shifts away from a preoccupation with the distribution of archaeological features and structures towards using such things as the starting point for exploring the distribution of actions and the way that individuals and groups dealt with encounters, experiences and engagements with space.

Notes

1. Since presenting this paper a number of other studies have been published which illustrate a range of related approaches to ancient landscapes and *inter alia* suggest that a number of researchers have, in parallel with one another, been exploring alternative perspectives to the exploration of ancient landscapes. Tilley (1994) utilizes phenomenology; Thomas (1993) explores the hermeneutics of space with reference to megalithic tombs; while Richards (Richards 1993; Parker Pearson and Richards 1994) emphasizes the structuring or ordering of space through cosmological schemes.
2. One radiocarbon date is available: 2878-2502 BC (2150 ± 90 be; OxA-1403).
3. The alignment of the cursus WSW to ENE means that on the equinox in March and September the sunrise and sunset can be viewed along its length, but since the idea of the equinox is generally regarded as a recent observational phenomenon it is here disregarded as being significant for prehistoric patterning.
4. These numbers refer to the feature codes assigned in Cleal *et al* 1995.

Moving on and moving around: Neolithic settlement mobility

Alasdair Whittle

In this paper I contrast the attention which has been paid to modelling mobility in hunter-gatherer societies with the lack of discussion of kinds of settlement mobility and sedentism in the British (and to a limited extent European) Neolithic and Early Bronze Age. Not only is this neglect theoretically short-sighted, but it also means that we are unable to deal adequately with the large amounts of new data which have been generated by recent large-scale research projects on settlementsettlement, landscape and monuments. I suggest a variety of reasons for moving on and moving around in the fluid social and physical landscapes of the Neolithic and Early Bronze Age. A spectrum of residential practices can be suggested, which may have endured until at least the Middle Bronze Age.

MODELLING HUNTER-GATHERERS

There is no lack of models for the residential patterns and strategies of hunter-gatherers. Kelly (1992) has provided the best general survey. There is no one universal mode of hunter-gatherer existence, since cases range from extreme mobility to semi-sedentism and even to sedentism. The prime reason for awareness of such variability is perhaps the abundance of ethnographic analogues, but debate has encompassed the archaeological record at least since the publication of *Man the hunter* (Lee and DeVore 1968). There is a now familiar language with which to discuss such variations in mobility. Distinctions have been made, for example, between the residential mobility of collectors and the logistical mobility of foragers; the former move wholesale at varying intervals, while the latter may establish themselves as a group at bases for longer or shorter periods, with tactical forays out into the landscape (Binford 1980; Kelly 1992).

Basically the same distinction has been made in terms of circulating and radiating mobility (Lieberman 1993). Another concept is of embedded mobility, in which a territorially restricted group visits the same places repeatedly each season, using fixed facilities, including houses or shelters (Binford 1983a; Kelly 1992). This is part of a concept of mobility at a territorial and long-term scale, the gradual (and occasionally drastic) shift of seasonal, annual and lifetime ranges over space (Binford 1982; Binford 1983b; Kelly 1992).

Related to these discussions is a wider debate about the nature of hunter-gatherer societies. In the archaeological literature at least, much attention has been given to the perceived dictates of subsistence and technology, but nonetheless this has not really served to constrict a sense of variability of lifestyle. From the ethnographic literature comes a stronger sense of other sources of variation, including social structure and normative values, which need not be seen as variables dependent on economy. The lack of dispute-solving mechanisms, for example, tends in many instances to make prolonged aggregations of people unstable, with fission as the way to deal with tensions (e.g. Lee and DeVore 1968). This can in turn be related to prevailing ethics of independence and egalitarianism (e.g. Woodburn 1982; Woodburn 1988). And the way in which people conceive themselves as related to nature and the land must also fundamentally affect how they move around to use resources within a given area (e.g. Ingold 1986). A sense of working with nature is an unlikely concomitant to intense levels of resource exploitation.

MODELLING THE NEOLITHIC

How different, from this perspective, appears the attention given to variation in residential patterns in the Neolithic. The general assumption in both Britain and Europe has been until quite recently that the Neolithic can be equated with farming, and both with sedentary existence. In part this shares a wider tendency to suppose that farming means staying in one place all the time, but in part it reflects ignorance of that literature which has challenged the inevitable links between agriculture and settling down. Kelly (1992) again provides the most useful collection of references.

Various strongly entrenched assumptions support the predominant equation. Having once equated the Neolithic with agriculture, archaeologists have tended to assume that the practice of mixed farming necessitates staying in one place. Cultivation requires regular inputs of labour, and growing crops must be protected, so the argument seems to go; and houses and other facilities, once built, are

an investment which must be justified by continued and prolonged use. Added to this is a sense of more people in the Neolithic landscape, with a greater awareness of territoriality (an assumption shared by varying shades of theoretical opinion: for example, Renfrew 1976; Hodder 1984). Curiously, the rather more flexible residence and subsistence models of earlier generations were elbowed out of consideration from the early 1970s onwards. Although Boserup (1965) had provided an evolutionary scheme for the gradual shortening of fallow regimes, from forest- to bush- to grass-fallow systems, palynologists began to turn away from the idea of shifting agriculture, at least as slash-and-burn practices (e.g. Pennington 1970; Smith 1970). And an influential theoretical paper (Fleming 1972) showed that shifting agriculture was anyway compatible with fixed residence. Around the same time, another influential model of European Neolithic settlement development proposed intensive garden horticulture at the start of the sequence, in the LBK (Kruk 1980; cf. Modderman 1971), replacing alternative models of both shifting agriculture and shifting settlement (Soudsky and Pavlu 1972; see also Czerniak and Piontek 1980; Rulf 1991).

In these ways, the idea of a sedentary Neolithic was reinforced, at a time of a significant increase in research activity. This has had at least three consequences. First, the idea of a sedentary Neolithic has fostered the view that Mesolithic pre-adaptations to going Neolithic involved a trend to sedentism or semi-sedentism (e.g. Zvelebil 1986; Rowley-Conwy *et al.* 1987). While this may have been the case in some situations, being much debated for example in south Scandinavia, it seems ill at ease with the available evidence in others, for example Britain and Ireland. Secondly, the dominant idea of sedentism has shifted attention away from residence patterns to subsistence. The concept of intensification has been applied to late Mesolithic economies (e.g. Bender 1978), and most attention for the subsequent Neolithic is given to the idea of further economic intensification, the secondary products model (Sherratt 1981) having taken a prominent role for now fifteen years.

The third consequence has been that discussions of mobility have largely been confined to the domain of pastoralism and nomadism, both of which have been classed by and large as both specialised strategies and from an evolutionary perspective as secondary developments. Two papers, again of the early 1970s, helped to set the tone of discussion in the case of Britain, and to my knowledge they have been little challenged since (Fleming 1971; Fleming 1972). In the first (Fleming 1971), the vision is set out of a seasonally

transhumant pastoral Early Bronze Age society on the chalklands of Wessex in central-southern England; the model is derived in the first place from study of the uneven distributions of barrow cemeteries. In the second paper, already referred to (Fleming 1972), pastoralism is seen as a rational or logical solution to problems of resource stress and competition, arrived at after stages of fixed residence combined with ever increasing clearance in a trend to the establishment of open country. Both papers reinforce a processual sense of clear-cut change from major period to period: the Early Bronze Age as different from the Late Neolithic before it and the Middle Bronze Age after it. This begs many questions. Why should changes in Early Bronze Age mortuary practice directly reflect economic change? May not the presence of cattle in Beaker rites, for example at Hemp Knoll and Irthlingborough (Robertson-Mackay 1980; Davis and Payne 1993), celebrate existing practice rather than presage radically new ways of doing things? Why should movement, seasonal or other, be restricted to the Early Bronze Age, and denied in the Late Neolithic and Middle Bronze Age? If mobility is confined to the Early Bronze Age, how do we as it were get back to a more sedentary scene from the Middle Bronze Age onwards? Could not in fact the distinctive feature of the Early Bronze Age (at least in the south of the country) be the greater formalisation and restriction of mobility, in line with new emphases placed on genealogical reckoning, compared with earlier periods?

There is much in the specialised literature on pastoralism and nomadism of relevance to the study of the Neolithic, though we need not dub Neolithic people as pastoralists or nomads, but that has become marginalised in debate. Kelly (1992, 44) leaves aside discussion of nomadic pastoralism for reasons of space, but leaves a short trail of references. The subtitle to a recent volume on *Ethnoarchaeological approaches to mobile campsites* (Gamble and Boismier 1991) is revealing: *Hunter-gatherer and pastoralist case studies*. Cribb's *Nomads in archaeology* (1991) offers much of interest to Neolithic studies, especially those [chapters \(6–8\)](#) which discuss settlements and domestic structures, but the broader perspective is of nomadic pastoralism as evolutionary development and specialisation, and the geographical frame of reference – quite understandably for an ethno archaeological study – the Middle East. What Cribb calls (1991, 154) ‘that fuzzy area5 of overlap between nomadic and sedentary residential arrangements deserves to be explored much more fully.

PROBLEMS GENERATED BY THE SEDENTARY MODEL: TWO BRIEF CASE STUDIES

This paper is a preliminary theoretical proposal, not a full study, but it is useful to relate the discussion so far more formally to two Neolithic sequences: in central Europe and Britain.

Central Europe

The Neolithic sequence in central Europe begins with the LBK in the mid sixth millennium BC (see Whittle 1996). The lifestyle includes cereal cultivation, cattle keeping and the use of large timber longhouses. Longhouses persist into the post-LBK horizon of the fifth millennium BC, but thereafter largely disappear in their original form. Though there are known built timber constructions in various areas through the fourth and third millennia, the settlement record becomes more varied and in some areas more elusive. Artefact scatters, occupation layers, pits, post- and stakeholes, and ditches, in various combinations with graves, ditched enclosures and other monuments, become the staple fare. Evidence for clearance, cereal cultivation and animal keeping continues; there are claims for intensification through plough cultivation, and the use of animals for secondary products (Sherratt 1981).

In a sense, from a processual or evolutionary perspective, the major halves of the sequence are the wrong way round. Dispersal, flux, and extensive forms of subsistence exploitation might logically be expected to have preceded more sedentary and economically more concentrated existence. Conceived as an initially sedentary and primarily economic phenomenon, the European Neolithic proceeds gradually to devolve. There are two kinds of response possible. On the one hand, hypotheses can be multiplied to explain the major structural shifts, for example in terms of the economic dictates of the secondary products revolution (Sherratt 1981), or alterations in structuring principles (Hodder 1990), or changes in social structure (e.g. Thomas 1987; Last 1996). None of these factors is irrelevant, but the radical alternative (Whittle 1996) is to question the supposed baseline of a sedentary LBK. Those longhouses have much to answer for.

Considering alternatives, there are possible signs that lighter constructions equalled or even outnumbered the archaeologically more durable major constructions (e.g. Louwe Kooijmans 1991). The symbolic role of big houses in establishing not just a new economic system but a changing value system needs much greater emphasis (Whittle 1996). Houses may have served as symbolic tethers for a population that still moved around a lot, following cattle through woodland, supplementing its diet with limited cultivation, gathering and some hunting. Such pollen diagrams as there are indicate limited

clearance in the LBK and post-LBK horizons, and studies of carbonized plants from LBK assemblages indicate the presence of many shade-loving weeds alongside cereals (e.g. Willerding 1983). Why should a fully sedentary system, in existence for longer than a millennium (taking the LBK and post-LBK together), supposedly cultivation-oriented rather than cattle-dependent, have made so little impact?

Britain

For reasons already discussed, the British Neolithic was long discussed as a sedentary phenomenon (including by Whittle 1977). This has begun to change radically. The sedentary model has been challenged head-on at a general level (e.g. Thomas 1991; Bradley 1993), and can hardly any longer be justified by the evidence gathered in a whole series of recent and continuing major research projects in varying parts of southern Britain (to say nothing of the rest of the country), including the chalk, river valleys and the fen-edge. The point now is to look beyond the initial clash of models and wealth of new data. One characterisation of the Neolithic way of life has been that it had 'a high degree of mobility', with a mixture of transience and partial stability (Thomas 1991, 25, 28). What does this mean? Can it not be refined? Another lingering tendency is to use a model of gradual development. Bradley (1987) has proposed a reduction of mobility in the Late Neolithic on the basis of changes in lithic procurement and core reduction techniques, but this leaves unclear the definition of mobility in the Early Neolithic, and its fate in the Early Bronze Age. One solution would be to envisage a very long sequence encompassing the Early and Late Neolithic and the Early Bronze Age, characterised by mobility throughout, declining perhaps in certain foci in the Late Neolithic and becoming more formalised in some areas in the Early Bronze Age; mobility may still have been maintained as part of the lifestyle in the Middle Bronze Age, though communal middens, linear ditches, small field nuclei and houses suggest a rather more varied scene in which sedentism begins finally to be established. It is clear that 'relative mobility' needs much clearer definition.

MODELLING NEOLITHIC MOBILITY

Neither houses nor cultivation and animal keeping need tie people to one place for ever. Staying in one place or moving about need not be determined by economic considerations, though they can influence such choices. What follows is a preliminary attempt to model residential fluidity. I distinguish here loosely between moving on, as rebuilding of structures with relocation possibly but not always

nearby, and moving around, as movement structured into residential systems at varying temporal and spatial scales.

Reasons for moving on

Even when people build and use houses, the investment in construction and subsequent occupation need not entail endless residence. It would appear that well made Neolithic houses on the edges of lakes in Switzerland must have been constructed in the knowledge of future flooding. Such houses were frequently repaired and rebuilt on what appear to be short timescales, of 10–20 years, and were probably subject to seasonal meltwater flooding of the residential surface; there is evidence that many buildings were raised. Greater floodings leading to full abandonment came at irregular intervals (for summary figures, see Whittle 1988; Coles and Coles 1989; Coles and Coles 1996). Expectation of future abandonment did not prevent construction in the first place.

A practical consideration for moving on is hygiene. Among Carib-speaking people in Guiana, the preference is for rebuilding or relocation when thatch deteriorates and becomes infested, even though rethatching would be a perfectly good option (Rivière 1995, 197). Social events and rhythms produce other relocations. Ill luck, misfortune or illness may cause people to relocate (Rivière 1995), while the death of household or group leaders may lead to the abandonment (Rivière 1995) or even the deliberate burning of houses (Hugh-Jones 1995). (Note that in other cases the death of house founders serves further to enhance and sanctify the status of a building, as among the Zafimaniry of Madagascar: Bloch 1995.)

Reasons for moving around

Physical factors may engender a pattern of structured movement. Annual seasonal flooding is a recurrent case. The Nuer, anthropologically classic (Evans-Pritchard 1940), moved themselves and their cattle according to an annual rhythm of dry and wet seasons. Neolithic people in Europe liked valley and fen locations which may have been subject to regular if not annual flooding, from Thessaly (van Andel and Runnels 1995) to southern England (French 1990; Needham and Trott 1987). Current large-scale projects such as in the upper Thames at Yarnton or the lower Great Ouse at Barleycroft (Gill Hey, this volume, and information from Chris Evans) promise to tell us much more about the periodicities of waterside existence.

Social considerations such as land ownership and sequences of inheritance may also cause fluctuations in residence. Among the

Tsembaga people of highland New Guinea there are many transfers of land through clan and marriage arrangements. Men usually garden near their normal residence, but may move occasionally to take up new holdings transferred to them (Rappaport 1967, 21–3). In this case study, there was another social rhythm, determined by the periodicity of the ritual cycle. That culminated in a year-long festival, which seems to have occurred about once a generation. This produced what Rappaport calls (1967, 21) a ‘pulsating’ residence pattern, since as the cycle progresses there is a tendency to nucleation, to be near the social and ritual heart of things, though the normal mode is one of dispersal. It has been noted in other cases, for example among the Nuer earlier this century, how important or charismatic figures may also tend to attract followers and influence local densities of settlement on at least a short-term scale (Evans-Pritchard 1940; Johnson 1994). In Guiana, a pattern of dual residence has been recorded, with people having dwellings both near outlying gardens and in a nucleated village with a ceremonial centre (Rivière 1995, 190). It may also be supposed that people enjoyed moving around, to maintain independence and freedom from political interference or the irksome obligations of kinship and alliance (cf. Sahlin 1972, 125–9).

The last dimension to consider is subsistence. There are innumerable ethnographic and historical cases of shorter and greater movements, tactical and strategic, many involving animals, but some cultivation as well. Two points may be emphasised here. First, we have become accustomed from ethnography and history to developed pastoral and nomadic systems, either involving structured, formalised and often rigidly seasonal movement, classically in transhumant systems from one ecological zone to another, or a more continual pattern of movement (‘free-wandering’ in older terminology: see Kelly 1992, 44). We are thus less accustomed to the notion of shorter-range movement, some seasonally based but some not; analogy does not easily supply a familiar language. Secondly, cultivation need not always be carried out close to permanent residences (cf. Thomas 1991, 28). As just one example, the Penobscot of Maine included cultivations in an annual cycle of movement through the seasons (Speck 1940). There is no intention here to search the ethnographic record for a direct analogue of the European Neolithic for none will be found, not least because of the variability in both the ethnography and the Neolithic. Many Neolithic people may have been closely linked to and dependent upon their animals, without being exclusively pastoralist, and most if not all may have engaged in at least some cultivation, to supplement their diet, or to provide animal fodder or the materials for

drink. Neither dimension seems to have kept people permanently in one place.

A SPECTRUM OF MOVEMENTS

Variability precludes simplistic typology or holistic characterisation (cf. Gamble 1991, 18). But some sense of a possible spectrum of kinds of movement through Neolithic landscapes can be offered, which goes part of the way to a better definition of 'relative mobility'. The numbering used is not intended to impose rigid separation.

1. Residential or circulating mobility, over varying annual and lifetime ranges, through landscapes with both named places and with time, built monuments. A series of short-stay camps might be produced, some for repeat-visits, with an additional pulse given by ritual and other gatherings in chosen places.

2. Embedded or tethered mobility. As above, with more structured patterns of repeat visits, with both monuments and built dwellings providing repeatedly used anchors in the system.

3. Logistical or radiating mobility, over varying annual and lifetime ranges, involving camps, bases or settlements occupied on at least a seasonal basis, with outlying camps for herding, hunting, gathering, cultivation, lithic procurement, and so on.

4. Short-term sedentism. Within an overall pattern of dispersal and fluidity at a lifetime scale, year-on-year residential stability, with or without formally built dwellings. The duration of individual settlements may be very short, from one year to a generation. (Swiss chronologies have already been noted; note also the suggestion of 17–33 years, based on use-life estimates for pottery, for the north Swedish comb-ware rivermouth site of Lillberget: Halén 1994, 147.) Taking hiatuses into account on the biggest sites (lakeside and marsh sites in the Apline foreland, perhaps large LBK sites, and certainly many tells further afield), this may have been the normal pulse rate for residences with built dwellings.

5. Short-term sedentism combined with embedded and/or logistical mobility: or *vice versa*. Set mobility may also be considered, perhaps seasonal movement by individuals (cf. Case 1969) or small groups, on an age or gender basis. Monuments could be part of the contexts envisaged in 3, 4 and 5.

6. Embedded sedentism: what I am tempted to call 'the Mercedes outside the longhouse' model. Generation-on-generation residential continuity, with the settlement continuing uninterrupted despite the individual caesurae caused by illness,

death, and so on as discussed above. This is likely to have been rare in the Neolithic of central and western Europe at least, given that most settlement was dispersed in small units and that, empirically, even the larger sites regularly show signs of hiatus or discontinuity. A variation may then be embedded, but fluctuating, attachment to place. Both variants are compatible with some mobility, as in 2 and 3 above. Enduring permanence in the system may come as much from the landscape, from names, places, monuments (Bradley 1993; Tilley 1994), and then fields and boundaries, as from residences.

The reader may readily supply cases which could fit this suggested spectrum. The southern British Neolithic and Early Bronze Age could have seen a combination of 1–5, and it is a moot point whether the Middle Bronze Age could be characterised by 6. As noted above, the major change then may have come in the structuring of the landscape, rather than of residence within it. Other cases which might fit 1–5 spring readily to mind, from the southern Scandinavian Neolithic to the Körös culture, while the Alpine foreland Neolithic and the LBK might be considered in terms of 2–5.

Variability will not be pinned down by classification or generalising characterisation. If a given region of southern Britain, for example, had a combination of residential modes, the next challenge is to try to understand the values and normative rules which fostered continued mobility. Descent from mobile (as opposed to semi-sedentary) Mesolithic forebears; value placed on independence and freedom from coercion; a continuing sense of working with nature, including especially animals (see Whittle 1996); and value placed both on open systems of association or cognatic descent, favouring something akin to shallow bilateral kindreds rather than lineages (Kuper 1988; Rivière 1995), and on individuals as self-contained entities (Strathern 1992); might all be considered as components shaping the social as well as the physical Neolithic landscape. Each requires further discussion in its own right, but together they may further illustrate the complexity of kinds of mobility, and show the impossibility of the simple distinction between mobility and sedentism which has reigned in Neolithic studies for too long.

Acknowledgements

I thank Douglass Bailey, Richard Bradley, John Evans and Julian Thomas for making me think about these issues. I am grateful to Gill Hey and Chris Evans for information.

Images of settlement and the landscape in the Neolithic

Gabriel Cooney

INTRODUCTION

Working, reading and writing on the topic of settlement and the landscape during the Neolithic in Ireland and Britain from an Irish perspective one is very conscious of a major conundrum. In Ireland archaeologists currently interpret the evidence as indicating the attachment of people to place and the relevance of considering people living within bounded, physically structured landscapes (e.g. Cooney and Grogan 1994, 35–52; Mallory and McNeill 1991, 31–43). A striking aspect of the Neolithic in some regions of Ireland is the evidence for field boundaries and sedentary settlement. In Britain the stress recently has been on moving towards a scenario in which the Neolithic landscape and settlement is characterised as centred on mobility. This is exemplified in the ‘did not’ statement of Thomas (1991, 28):

The population of Neolithic Britain did not live in major timber-framed houses, quite probably did not reside in the same place year round, did not go out to labour in great walled fields of waving corn, were not smitten by overpopulation or soil decline and much of their day to day food may have been provided by wild crops...real change in the fabric of the farming lifestyle would not take place until the mid to late second millennium (bc). Only at that point did field systems and permanent domestic structures become the norm in the British Isles.

This statement is made in the context of a very detailed and eloquent study of the Neolithic of southern Britain. This is the area which has been the focus of most research carried out to date and undoubtedly is critical in understanding the Neolithic in Britain. But in Thomas’s and other studies (e.g. Parker Pearson 1993; Barrett 1994; Edmonds 1995) the mobility model which is based on the evidence from a particular region has been extended to cover not only the whole of Britain but also Ireland. While Ireland is included in presentations of the British evidence at the same time the Irish evidence is underplayed, or, like

evidence from regions of Britain itself that does not 'fit' this mobility model, it is seen as exceptional or peripheral rather than something that offers evidence for a different interpretation of the Neolithic. So while differences at a regional level are accepted there is a strong argumentation in favour of a generalised pattern of settlement. This view has relatively quickly become embedded as a generalisation in the literature. Bradley (1994 (b), 96), for example, writing about rock art commented that both the late Neolithic and Early Bronze Age are periods 'without much evidence for sedentism in the British Isles'.

Taken at face value then in comparing British and Irish perspectives on Neolithic settlement and landscape in Britain and Ireland we are faced with two quite contrasting views. This contrast is masked somewhat by the fact that these differing views tend to appear in two parallel sets of literature; Irish archaeologists tend to focus on Ireland, while in Britain there is a tendency to assume that the two islands can be treated together, seen for example in the common use of the term the 'British Isles'. So how can we explain this dichotomy? Was there a uniform pattern of settlement on both islands? Or are there real differences in the pattern of life during the Neolithic on either side of the Irish Sea? Were those differences also present at a regional level within the islands of Ireland and Britain? Certainly in the case of Scotland it has been suggested that one cannot talk of just one Scottish Neolithic but of a series of regionally different Neolithics (Kinnes 1985; Sharpies 1992; Barclay 1996) and regional differentiation has been recognised as a distinct feature of the Neolithic of lowland England (see Harding 1995). Or do the differences reside in the way the Neolithic is thought and written about by archaeologists in Ireland and Britain? In trying to answer these questions I think it is necessary to see what the foundations of the new 'mobility' orthodoxy are and whether they do in fact stand up to a detailed examination of the evidence from Ireland, and indeed from other regions of Britain apart from lowland southern Britain.

THE MOBILITY MODEL

There appear to be a number of inter-related processes seen as providing support for the model of settlement mobility in the Neolithic. The relative weighing given to these by different authors is variable. Continuity from the Mesolithic seems to be regarded as an important factor with people seen as having essentially the same world view in both periods, the Mesolithic and Neolithic landscape is seen as one in which mobility was the binding thread, linking places of social and religious significance. There are two distinct

explanations for this continuity. In Thomas's view the British Neolithic was essentially a social transformation, as indigenous hunter-gatherers either took on a package of items and ideas that represented a new way and structure of thinking and doing things (Thomas 1988) or adopted, reworked and used in an innovative and varied way aspects of cultural repertoires that became current in northwest Europe around 4,000 BC. These varied cultural repertoires were the result of the inter-action between the cultural traditions that ultimately were based on a Linear Pottery background and those that had evolved in the 'penumbra' of hunter-gatherer societies around the core area of early farming settlement in western Europe (Thomas 1996(a)). In this scenario agriculture is seen as not necessarily being central to the process of becoming Neolithic. By contrast Zvelebil (1994) would see the subsistence changes that mark the Mesolithic to Neolithic transition as the only essential difference between foragers and early farmers. In this model it is the pattern of subsistence changes through availability, substitution and consolidation phases (Zvelebil and Rowley-Conwy 1984) as farming becomes incorporated into foraging strategies, which may already have included the management of undomesticated plants and animals, that is the key to understanding the process of becoming Neolithic.

The apparent lack of evidence for substantial cereal production alongside the continued use of wild plant foods (Moffet *et al.* 1989; Entwistle and Grant 1989) in Britain during the Neolithic has been used to question the extent or necessity of permanent settlement, field systems or land boundaries. Looking at the range of subsistence resources utilised by Neolithic people it seems clear that domesticated animals were the main source of meat and that cattle were the main domesticated species. The occurrence of cattle bones in formal 'non-domestic' contexts, such as the ditches of causewayed enclosures and in mortuary structures, indicate that cattle had a symbolic as well as a calorific value. The mobility of cattle has led to the suggestion that different grazing grounds were used on a seasonal basis, perhaps at some distance from each other. This interpretation of the pattern of subsistence is often discussed in tandem with the paucity of settlement evidence in lowland Britain. Even those structures that can be regarded as dwellings are seen as largely exceptional to the contemporary pattern of settlement (Thomas 1996(b), 7). The main evidence for settlement are lithic scatters (Gardiner 1984; Holgate 1988) and the focus has been on the interpretation of these scatters as suggesting short-stay settlement evidence (see discussion in Thomas 1991 and Edmonds 1995).

At a broader level the British evidence is seen as part of a wider pattern where the peripheral areas of western Europe can be contrasted with the heartland of the Neolithic in central and adjacent areas of western Europe where the roots of society and settlement can be traced back to Linear Pottery traditions; foragers on the Atlantic fringe, agriculturalists on the loessland farming core. In this core-periphery approach the house of the dead, the megalithic tomb or long barrow, replaces the settlement as the communal focus (Hodder 1990; Sherratt 1990). Now tombs and/or enclosures become the fixed, permanent points for a community who may have a greater or lesser element of mobility in their pattern of settlement. 'The monumental tomb is seen as the surrogate for the living village: a permanent house and household of the dead amongst the insubstantial huts scattered within its territory' (Sherratt 1990,149). In an interesting recent development it has been suggested that the Linear Pottery tradition houses should be viewed more as monuments than as domestic structures and that they were important in giving the inhabitants a new sense of time and identity and attachment to place (see Whitde 1995; Thomas 1996(a)). Again the stress here seems to be on underplaying the domestic purpose of such buildings in favour of their emblematic role in creating social identity for people, who it is argued retained a substantial element of mobility in their pattern of life.

Part of the background to this 'mobility' trend in interpretation can also be seen in Ingold's influential ideas on the concept of tenure and the relationship between land and landscape (1986). Rather than identifying with specific areas of ground or land because of the stress on mobility people in the Neolithic are seen as moving along pathways focused on locales in the landscape that may in some cases come to be marked monumentally (e.g. Bradley 1993; Tilley 1994). It is argued that it was up to two thousand years later, in the second millennium BC that a place-bound landscape perspective developed with greater emphasis on community and household identity expressed in the division, bounding and control of the land (e.g. Barrett 1994).

REVIEWING THE SITUATION

One of the justifications presented for the scenario outlined above is the need to break away from the idea of the Neolithic as a unitary phenomenon (Thomas 1993(a)), a total package built around the changes in subsistence practice. Ironically the presentation of this mobility settlement model as having wide application across Britain

and Ireland means that we are in danger of building another orthodoxy or total package within which we can neatly slot the Neolithic without the need for further discussion, an orthodoxy whose foundations as presented above appear to be resting on each other in a complex and somewhat circuitous fashion. My argument here is that these foundations are as much open to debate as those of the pre-existing general view of the Neolithic as always being marked by permanent settlement and organised agriculture which the mobility model was meant to challenge.

Looking at the Mesolithic/Neolithic transition in the context of the continuity between the Mesolithic and the Neolithic which is being used to support the concept of residential mobility, it is interesting that two of the factors that are recognised as indicating greater social complexity are the presence of cemeteries (in southern Scandinavia, Brittany and Portugal) and suggestions of moves towards more fixed residential base camps (e.g. Bender 1985; Price 1987; Tilley and Thomas 1993(a)), as indicated by the locations of base camps and greater control over resources. Both of these factors might suggest a greater and longer-term attachment to local areas and a diminution in the spatial extent and pattern of seasonal mobility. More broadly the whole nature of the Mesolithic/ Neolithic transition is still very problematic, as Kinnes (1988, 7) concluded:

There are no close correlations between the definable, insular, Neolithic and that of mainland Europe except in terms of process—and does this derive from social community, economic trajectory or understandable convergence? The nature of the preceding/contemporary Mesolithic is largely unknown and certainly only rarely capable of providing understanding of anything other than lithic technology.

In discussion of the transition on the two islands the distinctive differences in character of the evidence for the later part of the Irish and British Mesolithic are often overlooked. The existence of an apparently island-wide lithic technology aimed to the production of a consistent and relatively large standard form of blade-like flake (Woodman and Johnson 1996) in Ireland where people appear to have been concentrated on fishing and gathering can be contrasted with the microlithic, regionally differentiated lithic technology on the larger island where hunting is seen as an important aspect of Mesolithic subsistence strategies. If these differences reflect broader social and economic differences can we assume that the same process of transition necessarily took place on both islands? While the suggestion of population movement of any kind as a process to explain the beginnings of the Neolithic appears to have gone totally out of favour the question of how the physical components of the domesticated food

sources were actually brought onto the islands also seems to have been glossed over and Case's (1969) pertinent comments on the inter-relationship between these two problems could perhaps be usefully dusted down. For example, Woodman and O'Brien (1993) pointed out in relation to the domesticated cattle bones occurring in a Later Mesolithic context at Ferriter's Cove, Co. Kerry in the southwest of Ireland that cattle would have been an attractive commodity in Ireland where there are virtually no large mammals. But there is no easy explanation of how Irish foragers unfamiliar with large mammals would have gone about the importation of such an exotic (and mobile!) commodity.

With regard to cereal production, while recognising that many sites in Britain have produced sparse evidence it is important to remember that a majority of sites did produce both domestic and wild plants and the problems of sparsity of remains relates both to the domesticated *and* to the wild plant foods (Moffett et al. 1989; Stallibrass and Huntley 1996). The implications of the massive quantities of cereal grains at the early neolithic site at Balbridie in eastern Scotland (Fairweather and Ralston 1993) and the sizeable quantities of cereal plant remains from other sites in Britain such as Lismore Fields (Garton 1991) and Irish sites such as Tankardstown, Co. Limerick (Monk 1988) and Ballygalley, Co. Antrim (Simpson 1995; 1996) have not been adequately discussed in terms of their implications for the scale of cereal production in different regions of Ireland and Britain. Ironically Thomas argues that sites that produce quantities of carbonized cereal cannot be seen in a domestic context, because this is Very much out of keeping with other Neolithic sites' (Thomas 1996(b), 9). Regardless of the debate about where this cereal ended up what is clear from the Balbridie assemblage and the other evidence is that in some areas cereal growing and processing was being carried on a substantial scale (alongside the cultivation of other domesticated plants such as flax). We then have to consider the implications of this for field boundaries as it seems very probable that tillage areas would had required bounding and protection. Furthermore the architectural evidence of substantial timber-framed houses at the sites mentioned above and at other Irish sites such as Newtown, Co. Meath (Halpin 1995) and the very recently discovered houses at Ballyharry, Co. Antrim (Crothers 1996) would appear to provide substantial evidence for sedentary domestic settlement (see Grogan 1996). Perhaps the most striking aspect of the recently published volume on Neolithic houses (Darvill and Thomas 1996) was the convincing evidence that this wealth of Irish evidence is matched in Britain (see Barclay 1996

and Darvill 1996; see also Gibson 1992). It is relevant to note however the virtual absence of early and middle Neolithic buildings in Wessex and Sussex (see Darvill 1996, fig 6.3), the area at the core of the formulation of the mobility model. To argue about the domestic status of such structures is not very convincing in the light of the variety of meanings that have been seen to reside in structures recognised as houses, such as those from Skara Brae and Barnhouse in the Orkneys (e.g. Richards 1990; 1993). Indeed from an Irish perspective it is always surprising to see how in Britain the Orcadian settlement evidence is treated as exceptional while the evidence from areas in southern Britain such as Wessex is treated as typical!

Looking at southern Britain the discussion of early Neolithic flint scatters in particular as necessarily representing only short-stay settlement seems difficult to reconcile with a number of interpretative problems. These include the varying quality of the data involved (e.g. see discussion in Barrett *et al* 1991, 27–35), the impact of landscape taphonomy and geomorphological processes on artefact distributions (Allen 1991), the recognition that early Neolithic occupation debris is commonly found in subsoil features and that little of it may be represented in the ploughsoil (Healy 1987), the use of the leaf-shaped arrowhead as diagnostic of the early Neolithic when it is in fact found in contexts dating right through the Neolithic (e.g. Kinnes 1979) and the complexity of interpretation of lithic scatters in terms of the extent, scale and type of human activity that they represent (e.g. Clark and Schofield 1991). One pertinent question is that if Neolithic settlement sites are likely to appear as low density areas in systematic field surveys in southern Britain which has been described as virtually a ‘continuous flint scatter’ (Clark and Schofield 1991, 104) how will their character be recognised?

Perhaps the most striking example of simultaneously recognising that the Irish evidence is different and writing it off as exceptional and therefore not more widely relevant are the Céide Fields in north Mayo. This large-scale structured Neolithic landscape with large fields, settlement enclosures and megalithic tombs (Caulfield 1978; 1983; 1988) is often ignored or discussed in a cursory way when the question of the character of Neolithic landscapes is raised. Thomas (1996(b), 4), for example, has suggested that the dating of Céide is somewhat equivocal. But the field walls at Céide certainly predate the growth of blanket bog, and the pine trees which colonised this bog surface when a thin layer of peat had grown have been consistently dated to around about 2,900 BC. A hearth beside a circular house inside one of a series of settlement enclosures in the complex has

produced a radiocarbon date of around 3,200 BC and the megalithic tombs incorporated with the field system are megalithic long barrows; court tombs and portal tombs which form two of the classic monument types of the Irish Neolithic. Recent and detailed palynological investigations at Céide (Molloy and O'Connell 1995) have indicated very substantial clearance of the pre-existing woodland cover during the Neolithic. Whatever about the date of Céide the character of the site should be well known and Caulfield (1983) has suggested that the most likely function of this large-scale coaxial field system is the organised management of grazing in a context where the climatic conditions during the Neolithic would have given an almost round the year growing season. (It is interesting to contrast this model of managed grazing with the now popular concept of cattle herds needing to be moved regularly to graze areas that may be at a considerable remove from each other). Apart from the functional aspect Caulfield has drawn attention to the importance of the field system as the result of planned communal endeavour producing an organised and open landscape.

The question facing us is whether Céide was exceptional in the Neolithic or whether what is exceptional about it is that it has become a fossilised landscape which we should bear in mind when interpreting other areas where the surviving evidence is fragmentary? In answering this question the first point to make is that not only is there evidence of fields at Céide, but evidence from adjacent areas suggest that Neolithic field boundaries are widely preserved under blanket bog cover and there were varying approaches, in terms of scale and organisation, to the bounding of land during the Neolithic in north Mayo, as at Rathlackan to the east (e.g. Byrne 1994) and Belderrig (Caulfield 1978; 1988) and Carrowmore (Dunne, pers.comm.) to the west of Céide. Furthermore there are field walls dated to the Neolithic from other parts of Ireland, such as on Valentia Island in Co. Kerry where a stretch of stone walling has been dated to 3500 BC (Mitchell 1989). As survey of other suitable blanket bog areas intensifies it seems likely that more evidence will appear (see comment in Mallory and McNeill 1991, 43). The position taken here is not that we in any way assume that the Irish landscape was carved up into Céide-like systems but that the organisation of landscape into fields (of variable extent and form) was a common feature in Ireland during the Neolithic. Woodman (1992) has argued that such landscape organisation may have been restricted to less fertile areas where greater management and input was required, but the problem here is that it is precisely those areas when covered by bog that we have the

only chance of evidence of enclosure surviving.

In other areas such as the Boyne Valley the environmental evidence suggests that the landscape underwent considerable transformation and was organised during the course of the Neolithic (Cooney 1991). Again this is not to suggest Céide-like fields in the Boyne Valley but rather that the range of subsistence resources revealed in excavations in this area (e.g. Eogan 1984;1986; O'Kelly 1982; O'Kelly *et al.* 1983) combined with palaeoenvironmental data indicate a complex and varied landscape where different activity areas seem likely to have been bounded or enclosed, perhaps by a range of means. Both the quality and regional variety of this evidence from Ireland deserves greater discussion and it certainly runs counter to the image of the Neolithic landscape generated on the back of the mobile settlement model. It is also relevant to remember that evidence for Neolithic fields does occur in Britain, most notably on Shetland (e.g. Whittle *et al* 1986), although as Barclay (1996, 62) has commented the Shetland evidence rarely appears in syntheses of the British Neolithic. Again the argument is not that fields were in use right throughout the areas of Neolithic settlement but that they were used in areas of more intensive landuse and that they formed part of a mosaic pattern of landuse structured by peoples' use and perception of the landscape.

One of the notable features in recent discussion of the character of the British Neolithic is what could be referred to as the privileging of ritual over domestic activity. In recognising that the two are intertwined and the ubiquity of ritual activity the problem has now come down to the question of how one would recognise domestic activity. Thus the larger rectangular structures are hived off from other rectangular buildings because they are unusual and closer to the supposedly more ritual houses of the Linear Pottery tradition (Thomas 1996(b); Topping 1996). In a broader vein Sherratt's (1990) view, outlined above, on the changes taking place on the Atlantic fringe during the early Neolithic could be described as the loss of domesticity and the rise of the monumental. Much of this discussion seems to miss the point that daily life is permeated with ritual and that it is impossible to regard a house as simply a residence, it is a microcosm of peoples' socially constructed world (e.g. Parker Pearson and Richards 1994; Wilson 1988). If we continue to try to isolate the domestic by looking for what is not ritual we will never find the former or understand the latter.

It could be suggested that much of the evidence discussed here comes from peripheral areas in Ireland and Britain but then again who defines what is the core and what is the periphery? One of the notable

points about the beginnings of the Neolithic in Ireland and Britain is that, within the limits of our ability to date the process and our inability at the moment to say how exactly it happened, it appears to be a largely synchronous event (e.g. Rowley-Conwy 1995). Bearing this in mind alongside the evidence for growing regionalisation during the course of the Neolithic (e.g. Sheridan 1995) it seems very likely that different traditions of carrying on everyday life as well as marking and punctuating that life with ritual activity would have emerged in different regions. There was no one primary region, but areas linked by both a commonality of tradition and material culture and marked regional differences in how this was used in practice. We should not expect the evidence to be the same across Britain and Ireland, just as much as we should not expect it to be the same across the wide swathe of northwest Europe which we can see as the continental counter-point to the insular situation. What is needed is an appreciation of how regional histories fit into the larger-scale pattern. In the case of the mobility model of Neolithic settlement and landscape in Ireland and Britain it could be said that it is a concept which has been applied uncritically and too widely outside the southern British area for which it was formulated as the best interpretation of the evidence.

LOOKING BACK, LOOKING FORWARD

One central tenet of the mobility model is the importance placed on movement and paths in the landscape, contrasting with a place-centred landscape which is seen as developing later in prehistory. If there is one feature that stands out in the Irish archaeological record it is a sense of place, seen for example in the accumulation of evidence from different periods in particular locations. We could see this as coincidence or settlement inertia but more importantly it implies a sense of belonging, built upon human experience and cultural identity. Hunter-gatherer communities, because of a perceived emphasis on their mobility, are often viewed as being more concerned with movement over the landscape than with living in and having a sense of belonging to particular places. On the other hand hunter-gatherers would have needed to have a highly developed landscape sense to image and capture in their minds the range of natural resources which they relied on as a food base and many of which were also likely to have been symbolically charged. Certainly in the case of Aboriginal peoples in Australia the idea of symbolic classification of the landscape was common, this was based both on the land and the history of its use and could have involved marking the landscape

(Gosden and Head 1994).

In the context of Ireland where Woodman (1985) has argued for a degree of sedentary settlement in the early Mesolithic it is possible to argue strongly that we should see foragers as not only being concerned about pathways and routeways – be they of a physical or spiritual nature – but also with places. The recent emphasis in Britain with demonstrating the degree of continuity between the lifestyle and perception of landscape between hunter-gatherers and early farmers has been at least partially based on the problem of identifying permanent places of settlement in the landscape (e.g. Bewley 1994), it is worth reiterating that this has not been the case in Ireland. In Ireland during the Neolithic we can readily recognise the importance of places as the landscape was altered and transformed, both for mundane and sacred purposes. Changes in the land were brought about through the creation of field boundaries around settlements and megalithic tombs are the best examples we have of deliberately created sacred places. In both cases bounding and division of the landscape are involved but so also is the concept of orientation and provision for movement, stressing that these are complementary and not opposed activities. The concept of a structured landscape does not negate the importance of movement but rather it emphasises that place was important in the Neolithic, this attachment to place is not just something that develops later in prehistory.

Both pathways and places are important, and in Ireland there does not appear to be a chronological trend towards a greater emphasis on place and belonging in later prehistory as has been recently suggested for Britain. Indeed we can point to both the evidence of the importance of paths and pathways in later Irish prehistory and the importance of places in earlier prehistory (Cooney and Grogan 1994).

I would suggest then that the Irish evidence can be seen as providing an alternative perspective on the Neolithic to the one currently in vogue amongst many British archaeologists. One of the characteristics of the evidence in Ireland is the marked degree of regional variation and indeed it seems clear from the evidence that the pattern of life and landscape in Neolithic Britain was also regionally varied. Rather than being written out of interpretive schemes in favour of a generalised model of settlement, regional variability is the key issue to be engaged.

Acknowledgement

I would like to thank Seamas Caulfield for his comments on the paper and for our many discussions on Neolithic landscapes and terrains.

The infernal cycle of fire ecology

Jenny Moore

INTRODUCTION

Microscopic charcoal, interpreted along with pollen is, on the whole, our evidence of past fire events. The critical question asked of the data, and as yet unanswerable, is: does this material represent a natural fire, or has it resulted from human firing of the landscape? If we are ever to be in a position to evaluate human firing of the landscape in the past and to differentiate it from natural fire, then we have to come to terms with some basic misperceptions and misconceptions which cloud our ability to interpret that ephemeral palaeoecological indicator, microscopic charcoal. How we perceive the data, and the event which produced it, distorts interpretation.

In the trilogy, *Hitchhikers Guide to the Galaxy*, Douglas Adams (1995) has management executives, hairdressers, and other useful members of society from another planet transported to a very young Earth. Here they have to cope with various aspects of prehistoric life, one of which was the use of fire. They show a total inability to understand the fundamental reality of fire, which is highlighted when it is sarcastically suggested to them by the heroes of the book that they might like to have fire fitted in their noses. Due to their total lack of understanding of fire, they accept this proposal as entirely reasonable and go on to consider whether fire should be seen as a fashion item.

This facetious dialogue nicely emphasises two important points: once a society is removed from having direct contact with fire, or the immediate necessity of using it, the cognition of fire is problematised. Secondly, this distancing results in the ability to appraise fire in the environment changing dramatically. Fire suppression policies in North America created just this scenario, wildfire was excluded from the forests and the negative aspects emphasised. Stephen Pyne sees national fire consciousness being focused during World War II with

the ultimate destructive fire of the atom bomb, reinforced in the public mind by the release of *Bambi* by Walt Disney Studios, where that cute little deer nearly gets burned in the nasty forest fire created by humans. A national consciousness metamorphosed into a national fire prevention campaign – ‘all fire was hostile fire’ (Pyne, 1991, 509).

The error of this train of thought is gradually being appreciated. Forest fire managers have, since 1970, reexamined fire suppression policies and endeavoured to restore fire to the forest in some form or another, but this is still not at the forefront of public consciousness as acceptable behaviour. The Yellowstone conflagration of 1988 went some way to raise in the public mind the disastrous effect fire suppression policies can engender, but perhaps the long-term result has been to reinforce the ‘all fire is hostile fire’ lobby, together with a feeling that such a fire was an exception, occurring maybe only once every 300 years, and therefore not worth worrying about.

Concentrating on the woodland environment, in Britain, we have a very specific bias. We believe that because woodlands do not burn now, except under very unusual conditions of extreme drought, they did not burn in the past. This view is enshrined in Rackham’s statement: ‘British woodlands (except pine) burn like wet asbestos’ (Rackham 1986: 79). The potential for human manipulation of the forested environment through the use of fire, to increase floral and faunal resources in the Mesolithic (Mellars, 1976; Zvelebil, 1994), is instantly negated. Rowley-Conwy (1982) argued that slash-and-burn did not happen in Neolithic temperate Europe because it was ecologically unlikely. Yet, during the Neolithic, it is generally accepted that woodlands were cleared. Rackham (1986) states from the commencement of the Neolithic, at around 4000 BC, large tracts of woodland were converted to farmland or heathland, but that this must have been achieved by felling forests with stone axes. It may be that stone axes played a significant part in the clearance of forests, but more importantly, at periods of reduction in woodlands evidenced in the pollen spectra, there is an increase in microscopic charcoal. Firstly, however, we have to consider what is meant by woodlands.

PRISTINE WOODLANDS

In Britain, there seems to be a singular difficulty in defining woodlands. Rackham (1986) describes colonisation after the last glaciation, and sees that from 6500–4000 BC a series of ‘climax’ woodland types developed covering the country except for small areas of natural moorland and grassland, high mountains and other extreme environments. This was the natural wildwood before the beginning of

large-scale human activity. These were the virgin forests, the Primeval wilderness, static and undisturbed by human activity and unaltered through aeons of time. Peterken (1993) also sees these forests as wholly natural woodlands, but then describes how virgin stands may have been altered. There is even confusion over terminology. In the tropics, 'Primary' forest is virgin forest whereas 'secondary' forest grows up after primary forest has been destroyed. These terms refer to the stand, but in Britain they refer to the site as woodland. Peterken (1993) replaces these with 'ancient' and 'recent secondary', but again the definitions blur. In a later publication, Peterken (1995) resorts to various levels of 'pristine-ness' to define woodlands, although again many of the so-called 'pristine' woodlands appear to have been subjected to forms of human influence.

The terms 'virgin' and 'pristine' create a romanticised vision of the forest primeval which is the first bar to understanding human/woodland interaction. Rackham's (1986) 'canopy' – a mature forest across most of Britain, static and undisturbed, did not exist. Natural processes such as windthrow, disease and insect attack would be creating 'edge' and 'patch' dynamics within the forest, integral aspects of forest ecology. Natural forests have probably had little chance of developing to a completely stable state (Peterken, 1993). Once attempts are made to draw distinctions between primary and secondary woodland, the position becomes even more blurred. The distinction is a variable of ecological isolation and disturbance.

Rackham (1986) reinforces his wildwood ideas by suggesting that the prehistoric forests of Britain can be understood by reference to the undisturbed wildwoods encountered by the early American settlers. Unfortunately, this completely disregards the activities of the Native Americans, who had been significantly altering their woodland environment for thousands of years. In many areas, fundamental to the Native American management and utilisation strategy was the use of fire. Therefore these ostensibly primary woodlands were, on the whole, secondary woodlands. Slightly paraphrasing Jennings (in Cronon, 1983) the forests of the Americas were less virgin than widowed, at the time of European colonisation. So, in Britain we are invited to understand the 'wildwoods' of prehistory by reference to the forests of America, which had been substantially altered through the use of fire, by the time European settlers arrived. It is perhaps an indication of how European perception of wildwood had been altered, in that they were able to view the open, park-like forests maintained by the Native Americans, as 'wildwoods'.

There has been a fundamental problem for ecologists when

endeavouring to define a forested ecosystem, in that they are examining an anthropogenically altered environment but want to determine what that environment would have been like without human intervention. On this basis, we cannot strictly know what the composition of a prehistoric forest would be like, and therefore we cannot assume that a prehistoric forest was 'Virgin', unaltered by human activity.

ECOLOGY

The terms 'climax' and 'succession' are misnomers that persist from the early days of ecology. Disturbance is a significant aspect in ecological relationships, which was acknowledged in the earliest works, but until recently was seen purely in terms of an adjustment in the relentless and inescapable progression towards equilibrium, or climax. All ecosystems were seen in terms of this linear, predictable progression (Pickett & White, 1985). However, "disturbance" and "perturbation" have been used synonymously by some and given particular meanings by others. Pickett & White (1985) endeavour to define these terms, but if we consider them in relation to forest fire, confusion arises. "Perturbation" can be defined as a disturbance that is new to the system, i.e. human disturbance. Once a system has become perturbation-dependent, change is not simply incorporated, rather periodic disturbance is required for its continued existence and evolution (McGlade, 1995). On the other hand, 'disturbance' includes environmental fluctuations and destructive events, whether inside or outside the range of normality for a particular system. However, human fire activity can take the form of a 'normal' event, mimicking an environmental fluctuation such as fire in the forest. It is not new, but is occurring at maybe more frequent intervals than 'normal' events and is more spatially defined. Anthropogenic fire out of control could be defined as a "perturbation" in these terms and human activity can fluctuate between these two descriptives.

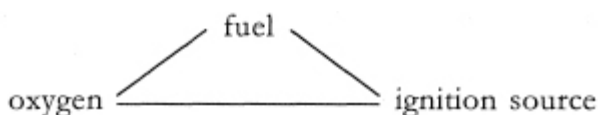
There needs to be a socialisation of human interaction with the environment, and the landscape. Humans are seen as 'impacting' on the environment, implying the negation of some path to equilibrium. Any definable human use of fire tends to be interpreted in terms of destruction of an environment that had been striving through its successional phases to reach a 'climax' – in other words, an 'impact'. However, if we view human use of fire as interactive with, rather than impacting on the environment, then it can be interpreted in terms of a nonlinear dynamical process. Social practice shares with the natural world areciprocal dynamic: people and the environment are in a

constant state of negotiation and renegotiation (McGlade, 1995). Human relationships with nature have not always been those of destruction, domination and possession, but perhaps more of belonging to the animate and inanimate community of nature (Hayward, 1995). By failing to have regard for ecological dynamics, Rackham (1986) has over-relied on 'climax' and 'succession' to evaluate the development of British woodlands after the last glaciation. Even without fire, the early postglacial woodland was not a continuous canopy, and herb communities were present where such opportunities presented themselves (Edwards & Ralston, 1984). Disturbance, through whatever cause, takes place in the forested environment, creating a patchwork of species, age structure and cover. Incorporating this dynamical process into an understanding of past fire events is material to evaluating human use of fire in the forest.

FIRE ECOLOGY

Whilst there are basic principles which govern fire ecology, the actual process has not been clearly defined. Across a range of environments, the role of fire in the forest ecosystem is poorly understood, either in the past or in the present. Often the only record of a fire is microscopic charcoal which is representative of a fire somewhere and at some point in time. There are many ways in which microscopic charcoal could be transported to its depositional environment, away from the source, and there is no way of determining from the charcoal itself what type of fire produced it.

The basic components required for a forest wildfire, all of which need to be fulfilled for the fire to occur, are:



The principle natural source of ignition for wildfires is lightning strike. Both directly and indirectly, climate is probably the single most important factor governing the occurrence of wildfire. However, a standardisation of requirements for wildfire tends to lead towards an image of an 'average' or 'normal' forest fire. It is important to emphasise that no two fires are alike, each fire is unique (Vogl, 1974).

Fires in naturally occurring vegetation fuels are usually unconfined, or free-burning. Free burning fires establish their own boundaries, and an important factor in this is wind strength and direction. The fire will continue until it encounters a fuel it cannot ignite or a boundary it

cannot leap. The type and condition of fuel tends to define the way in which the fire spreads and therefore the taxonomic grouping of the vegetation fire. A fire which spreads by flaming combustion of vegetation fuels on or near the ground is classified as a 'surface fire'. A fire which spreads through the crown layer of a stand of trees is called a 'crown fire' (Albini, 1993). Crown fires are often dependent on surface fires and are invariably ignited by surface fires (Van Wagner, 1977).

The simple definitions of 'crown' fire and 'surface' fire do not accurately cover forest fire regimes and these were further defined by Heinselman (1981) into seven types:

1. No natural fire, or very little,
2. Infrequent light surface fires (more than 25 year return interval),
3. Frequent light surface fires (1–25 year return interval),
4. Infrequent, severe surface fires (more than 25 year return interval),
5. Short return interval crown fires and severe surface fires in combination (25–100 year return interval),
6. Long return interval crown fires and severe surface fires in combination (100–300 year return interval),
7. Very long return interval crown fires and severe surfaces fires in combination (over 300 year return interval).

Through the above Heinselman (1981) produced clear categories upon which to build an understanding of forest fire regimes, and expanded the somewhat simplistic 'crown' versus 'surface' fire definitions. Yet our perception of fire leads us to see all forest fires as that defined in categories 5, 6 and 7. We are conditioned to view the major conflagration as typical of forest fires. However, as part of the natural fire cycle of a forest, categories 2, 3 and 4 are the most significant, the burning of surface fuels at relatively frequent intervals. Further, this ideology leads, unconsciously, to interpretation of peaks in microscopic charcoal as representing a severe fire, and consequently commensurate changes in vegetation are expected in the pollen record.

HUMAN USE OF FIRE IN THE FOREST - THE NORTH AMERICAN ANAOLGY

Native American use of fire in the forested environment was recorded contemporaneously, although with a European bias. European settlers arrived in America and observed what they thought to be 'virgin' or

‘primeval’ tracts of woodland. Then they observed firing of the forests by Native Americans, whom they labelled as ‘wasteful and destructive’ (Silver, 1990). Their lack of understanding of the use of fire in the forest was coloured by fear of fire. To them, fire was a threat to settlement, and indeed land use, and had to be kept as far away as possible. They completely failed to comprehend the technological skill and objectives of the Native American use of fire.

Scholars observed that Native American fires were light ground fires, which, although they altered the forests, was for a specific purpose (Silver, 1990). Cronon (1983) describes how in New England, Native Americans cleared land by the simple expedient of setting fire to wood piled around the base of standing trees, which destroyed the bark and so killed the trees. Women could then plant corn amongst the leafless skeletons. During the next few years, many of the trees would topple and could be removed entirely by burning. It was apparently women who undertook this work, one Native American remembered: ‘An industrious woman, when a great many logs are fallen, could burn off as many logs in one day as a smart man can chop in two or three days time with an axe’ (Cronon, 1983: 48).

Lewis (1980; 1985) has conducted the most comprehensive survey of Native American use of fire in the forest. He observed (Lewis, 1985) that these fires differed from lightning-caused fires in terms of seasonality, frequency, intensity, selectivity and spatiality. They had specific objectives in mind, and were not firing major tracts of forest, but selectively clearing and maintaining areas. Lewis and Ferguson (1988) describe fire yards and corridors – fire yards are openings or clearings in a forested area maintained by burning, perhaps on the edges of forests or lakeshores. Fire corridors could be on the fringes of streams, or trails. Both areas are places where animals collect or traverse, therefore creating a greater measure of hunting predictability. Larger-scale burning would be areas of windfall, which were regarded as ‘dead places’ and had to be fired to make the forest live again (Lewis, 1980), and perhaps were infrequent events.

Barrett and Arno (1982) interviewed Native Americans in western Montana, who cited the following reasons for firing:

1. Maintenance of open stands to facilitate travel, and clearing travel routes through dense timber.
2. Improvement of hunting by stimulating growth of desirable grasses and shrubs, to facilitate stalking, and to drive or surround game.
3. Enhancement of production of certain foods and medicine plants.

4. Improvement of horse grazing.
5. Clearing of campsite areas – reducing fire hazard and camouflage for enemies, cleaning up refuse and destruction of pests.
6. Communication, by setting large fires.

Native American firing of the forest was undertaken with clear objectives and within specific boundaries, such as frequency and season. It was not a haphazard process, without calculated outcome. There is a cyclicity in fire maintenance that with our 20th century expectation of 'Instant' results, we have failed to comprehend. Fire-maintained areas may not have been short-term, isolated projects. Small areas would be burned, and the regenerative species utilised. Perhaps seasonally, the area burned would be increased, with re-burning of the previously fired tract. Eventually, the fire damaged trees would topple over, and there would be more burning, perhaps some planting. Continually during this period the regenerating floral resources would be harvested, and the game attracted to the fresh growth hunted. A cycle of 20–30 years maintenance could be required for an area to reach a peak in terms of clearance and therefore production, during which time fire-stimulated resources would be utilised.

Even now in Britain, it is easy to conduct small-scale firing of fresh woodland vegetation. Within a day it is possible to cut and burn several small saplings, and it is a question of controlling the resulting fire, rather than finding ways of keeping the fire going. It is the effective control of a burn that is the skilled part of the process. This type of firing is likely to be unsuccessful only in late spring, when the sap is rising. Conditions for burning, or rather controlling a burn can differ from day to day, even hourly, and there may be considerable variation within a region (Lewis, 1980). One possible method of predicting firing conditions was reported by Chandler *et al* 1983. Foresters noticed that the moisture content of litter on the forest floor changed from day to day, and the behaviour of a fire was related to this moisture content. An early device to predict fire behaviour was to hang a hemp sack filled with moss, suspended on a balance. The heavier the bag of moss, the higher the moisture content.

Rather than human firing of the forest appearing to be a New Age vision, with humans totally in tune with their environment, this presents the possibility of prehistoric fire prediction technology and measurement of environmental indicators, which would allow effective control of the fire. Regrettably, along with the 'smoking match' (Chatters, J., pers. comm.), such evidence does not survive to

become part of the archaeological record of human firing.

SUMMARY

Of necessity, this has been a sweeping synthesis across environments and ethnographies. It should be viewed as paths of thought, potentially to dispel some prevalent misconceptions about fire in the British forested environment, rather than providing definitive answers. That in prehistory humans could manipulate the forest in Britain through the use of fire, and for quite specific objectives, is the hypothesis proposed. The first avenue of thought opened up is that fire in the forest is not necessarily hostile, and neither does it always take the form of a major conflagration. These are two significant misconceptions which prevent understanding and evaluation of human use of fire in the environment. By perceiving fire in the forest as potentially beneficial, and on a scale other than the major conflagration, then placing it in the context of the environment, we may be able to make inferences of human activity and differentiate them from natural events.

We can make no direct reference to the conditions of prehistoric forests by studying forests of today, and therefore cannot make assumptions as to the ecological dynamics of such forests. Ecological processes in forests are still tainted with the ideology of reaching equilibrium, and therefore a disturbance is interpreted as preventing that stage. Disturbance is, however, part of the evolutionary process of a forest, a nonlinear dynamic, and as a process, fire ecology has not been fully evaluated. If we are to define criteria through which it will be possible to differentiate anthropogenic fire from natural fire, then cognition of forest ecology dynamics, incorporating fire ecology will be a key factor.

Our evidence of fire in the past is, on the whole, represented by the microscopic charcoal record coupled with commensurate changes in the pollen spectra. Changing our perception of fire, and a greater understanding of fire ecology, may allow re-evaluation of the palaeoecological record, but there is a very specific problem which will have to be addressed. Taking Heinselman's (1981) criteria, categories 2, 3 and 4 are the most frequent and commonly occurring events in the fire cycle. Equally, they are the events which could be most easily replicated by humans manipulating the forested environment for specific purposes. Differentiation between the two processes is problematic, but potentially resolvable.

Re-evaluation of the microscopic charcoal record is critical. Having adjusted our perception of fire from always being a major catastrophic

event, then equally interpretation of peaks in microscopic charcoal should be reassessed, and related to the pollen spectra. The relationship of the peak with pollen spectra is potentially indicative of the type of fire. The next step then, would be the differentiation of the less severe events (Heinselman, 1981) from human firing. If each natural forest fire is unique and irregular, of whatever severity, then perhaps a clue to human firing would be a charcoal record which shows consistency and uniformity. Rather than a pattern of irregular peaks, we should expect a steady influx and continuity of charcoal. Coupled with this would be a pollen spectra which equally shows a steady maintenance and continuity of, say, fire responsive arboreal species, and an increase and continuity in herbaceous species, particularly those which are capable of utilisation.

In order for controlled human firing of the forest to take place, it would have been necessary to have a detailed understanding of the very specific conditions which would result in a burn producing an anticipated outcome, whether that be an increase in floral or faunal resources, or both. Evaluation of human forest firing should be put on a technological level. This was not a haphazard activity, conducted at random, and without a predictable outcome. There is a spatial and temporal component to such a process. Human interaction in an environment, particularly in the context of fire, needs to be viewed as a social dynamic process, not a short-term impact.

Utilisation of fire in the forested environment by hunter-gatherers continues to be debated, and it is only through re-evaluation of the palaeoecological evidence that interpretation can be made. This is critical to our perception of how people interacted with the landscape, and how landscapes were transformed in the Neolithic, both in terms of physicality and ideology.

Acknowledgements

Useful comments on an earlier version of this paper were made by A.G. Brown and E. Peacock.

The social construction of the Neolithic landscape of the Channel Islands

Mark Patton

INTRODUCTION: WHERE DID THE MEGALITH BUILDERS LIVE?

The Neolithic landscape of the Channel Islands, as understood from the archaeological record, is a landscape dominated by megalithic monuments. The most recent general survey of the Channel Island Neolithic (Patton 1995a) identifies only five settlement sites, as compared with 79 recorded megaliths. The scale of some of the largest megaliths implies a population of some considerable size: Kinnes & Hibbs (1988) estimate that a minimum of 200 people would have been required to move the largest capstone at the passage grave of La Hougue Bie from its source on the South coast of Jersey, whilst other estimates (cf Patton 1995a, 62), again based on the evidence of the monuments themselves, suggest that Jersey must have supported a community of at least 1500–2000 people, and probably more. This prompts the obvious question of where these people actually lived.

The one major excavated site which has been claimed as a Neolithic settlement (Hawkes 1937, Godfray & Burdo 1949,1950), Le Pinnacle in Jersey, must certainly be reinterpreted: in its Early Neolithic phase the site clearly functioned as a production centre for stone axes (Renouf & Urry 1976, Patton 1991a), whilst in its Chalcolithic phase the evidence suggests a ritual rather than a domestic function (Patton 1995a; Patton & Finlaison on forthcoming). In neither phase are there any indications of huts, houses or other domestic structures. Having eliminated Le Pinnacle from consideration, we are left with only five identified Neolithic settlements in the published literature. The sites of L'Erée, Guernsey (Patton 1995a) and La Motte, Jersey (Nicolle & Sinel 1912, 1914; Patton 1995a) were both discovered as a result of coastal erosion. At L'Erée, pottery of both Early Neolithic and Early Bronze Age type has been found, though much of this has been removed by private collectors. The soil sections exposed in the cliff face suggest

two distinct strata. This site has never been excavated, though a geophysical survey suggested the existence of associated structures. At La Motte, pottery of both Middle Neolithic and Chalcolithic type was found, associated with large quantities of animal bone and shells of limpet, cockle, oyster and mussel: no clear stratigraphy was identified when the site was excavated in the early years of the 20th Century. The evidence from this site is complicated by the existence of a series of cist graves (Nicolle Sc Sinel 1912, 1914) which, though published as Neolithic in date, are probably Early Christian or, at the earliest, Iron Age or Gallo-Roman. The dunes of Les Blanchés Banques, Jersey, have produced large quantities of settlement evidence, which first came to light as a result of the construction of a prisoner-of-war camp during the 1914–18 war (Hawkes 1937). Recent excavations by Margaret Finlaison (Patton Sc Finlaison in press) revealed traces of post-built structures, associated with land surfaces which produced large quantities of Chalcolithic pottery. Excavations at Les Fouaillages, Guernsey (Kinnes 1982) revealed similar evidence for Chalcolithic settlement in close proximity to the Early Neolithic long mound (itself modified and reutilised during the Chalcolithic period). At the Bronze Age promontory fort of Jerbourg, Guernsey (Burns 1988), evidence for Chalcolithic settlement was recovered from a layer underlying the defensive rampart. Of the five identified settlement sites, therefore, three date exclusively to the Chalcolithic period (c2850–2250 cal BC), and thus post-date the main phase of megalithic construction on the islands. Only one site, La Motte, has produced pottery of Middle Neolithic type (c4250–3250 cal BC), contemporary with the construction of passage graves such as La Hougue Bie. L'Érée is potentially the most important of these sites, since it appears to be stratified, and at least part of the site is undisturbed. The assemblage from this site includes pottery from the earliest Neolithic phase recorded on the islands (c4850–4250 cal BC), contemporary with the construction of the long mound at Les Fouaillages (Kinnes 1982).

The problem of invisible settlements is by no means unique to the Channel Islands: the islands themselves form part of the Armorican region, the archaeological evidence for which is again dominated by megaliths, with very limited evidence for Neolithic settlements (Giot et al. 1979; Patton 1993). There are a number of post-depositional factors which may have contributed to this bias. Firstly, it is not unreasonable to assume that agricultural settlements would be situated on or near good agricultural land and, since good agricultural land in the Neolithic is also good agricultural land today, the chances of settlements being destroyed by ploughing would be very high. Since

the 19th Century, when the advent of the railway and steam shipping opened up the UK and Continental markets to Channel Island growers, the islands have been intensively cultivated, and the 19th Century “Grand Charrue” (Great Plough), pulled by six oxen, would have spared little in the way of archaeological evidence. Hibbs (1986) has looked at the post-depositional transforms affecting the archaeological record in the islands, and has shown a clear correlation between agricultural activities and the distribution of known sites, the majority of which are found in areas which were not enclosed at the time of the agrarian revolution. Sea-level change may be a further factor. Palaeoenvironmental studies have shown that sea-levels around the Channel Islands have risen significantly since the Neolithic (Jones et al. 1987, 1989): if, as seems likely, Neolithic communities were dependent on fishing as well as on farming, we might expect settlements to be located on or near the coast, in which case many are likely to have been destroyed by rising sea-levels. Discovery bias may also be significant: agricultural practice on the islands is dominated by the intensive cultivation of crops such as potato, tomato, courgette and cauliflower, which are unlikely to produce cropmarks to indicate the positions of buried ditches and structures. The intensive nature of the agricultural regime also creates major logistical problems for anyone attempting to organise large-scale field survey, as a result of which, no such survey project has ever been attempted.

NEW LIGHT ON AN OLD PROBLEM?

The problem of invisible settlements in the Channel Island Neolithic was first identified in the 1920's and 30's (Kendrick 1928; Hawkes 1937), though discoveries at Le Pinnacle, La Motte and Les Blanchés Banques seemed at least partially to have filled the gap. Recent research has, somewhat inconveniently, removed Le Pinnacle from the list of possible Neolithic settlements, but may, in other respects, have shed further light on the problem.

Flint Scatter Assemblages

The archaeological collections of the Jersey, Guernsey and Alderney museums include large quantities of worked flint obtained through surface collection, either from ploughed fields or from eroding headlands. These collections reflect, for the most part, the activities of amateur archaeologists and collectors from the early years of the 20th Century down to the present day. In many cases (particularly the early collections), collection has been unsystematic and recording perfunctory. Prehistoric pottery is rarely preserved in ploughed or

eroded contexts, being particularly vulnerable to mechanical degradation, so most of the collections consist almost exclusively of worked flints, with occasional tools of igneous rock. In total, 21 flint scatter sites can be identified on the basis of these collections, and it might reasonably be assumed that most of them relate to domestic activity of some form.

Table 5.1 shows the composition of flint assemblages from these surface collections. The first problem in attempting to understand these assemblages is one of chronology. In the absence of pottery, most assemblages have been dated on the basis of the presence or absence of particular type fossils: these include elements of Mesolithic (backed bladelets, trapezes, scalenes, microburins), Neolithic (transverse arrowheads) and Late Neolithic/ Chalcolithic (barbed & tanged arrowheads) date. It is possible that some assemblages date to the Early Bronze Age, as excavations at the settlement of La Moye I, Jersey (Patton 1988) demonstrated the continued importance of flint working into this period. Metrical analysis (Patton 1995a) of worked flints from stratified Middle Neolithic contexts (La Hougue des Geonnais, Jersey), Chalcolithic contexts (Les Blanchés Banques & La Tête des Quennevais, Jersey) and Early Bronze Age contexts (La Moye I, Jersey; L'Erée, Guernsey) failed to provide any evidence for significant chronological variation. Similar metrical analysis of the flint scatter assemblages themselves, however, did permit the isolation of a series of assemblages which are significantly different both from the other flint scatter assemblages and from the stratified assemblages mentioned above. These atypical assemblages, which have unusually high proportions of narrow blades, are from Le Col de la Rocque, Le Canal du Squez South & Le Catel de Rozel, Jersey, La Crève Coeur, Guernsey, L'Emauve & Les Pourciaux/Mannez, Alderney. Several of these assemblages also include Mesolithic type fossils (backed bladelets & microburins at Le Canal du Squez South, L'Emauve & Les Pourciaux/Mannez, trapezes at L'Emauve, prismatic cores in most assemblages). These six assemblages, therefore, are probably not relevant to the search for Neolithic settlements. It is a reasonable assumption, however, that the remaining 15 assemblages date either to the Neolithic, the Chalcolithic or the Early Bronze Age: it is unfortunate that, on present evidence, it is not possible to date these flint scatter sites with more precision.

Table 5.1: Composition of Flint Assemblages from Surface Collections in the Channel Islands

<i>Jersey</i>	Flakes	Cones	Tools	<i>Guernsey</i>	Flakes	Cones	Tools
1. Almorah	116	0	9	12. Pembroke Point	112	0	0
2. Beauport	617	0	23	13. Albecq	108	0	0
3. Plémont	156	19	10	14. Lihou Islet	371	15	0
4. Grosnez Common	121	9	3	15. Crève Coeur	288	0	3
5. Canal du Squez North	215	3	0	16. La Corbière	270	0	0
6. Canal du Squez South	1233	6	8	17. Rue des Prévosts	117	0	9
7. Col de la Rocque	529	60	68	18. Ruette des Norgiots	394	12	31
8. Les Marrioneux	350	0	6	<i>Alderney</i>			
9. L'Etaquerel	119	1	1	19. Sylt	202	21	11
10. Catel de Rozel	239	63	28	20. L'Emauve	840	34	25
11. Bagatelle Farm	124	5	7	21. Les Pourciaux/Mannez	326	10	16

Having excluded a series of probable Mesolithic sites, the distribution of the remaining flint scatter assemblages may be significant. In broad terms, the landscape of the Channel Islands can be divided into the following environmental zones:

- A. Plateau, average height of 100 metres above present sea-level. The edges of this plateau are defined by a Pleistocene fossil cliff. The plateau zone itself slopes gently downwards, from North to South in Jersey and from South to North in Guernsey.
- B. Valleys, dissecting the plateau and carrying small streams (the main source of fresh water on the islands).
- C. Coastal plain, below the Pleistocene fossil cliff.
- D. Coastal marsh, of which little remains, but which would have been important during the Neolithic period. This marshland seems to have been formed behind sand barriers, most of which were breached by rising sea-levels at the end of the Neolithic (Jones et al. 1989). Evidence of this marshland survives in the form of inter-tidal peat deposits.

Figure 5.1 shows the distribution of later prehistoric flint scatter sites in relation to these environmental zones. Most sites are located either on the coastal plain itself, or on the edge of the plateau, overlooking the sea. Of the fifteen sites, eight are situated within 500 metres of the coast, and only four are more than a kilometre from the sea.

Environmental diversity is also likely to have been a factor in site location. Table 5.2 shows the environmental zones included within a 1 Km radius of each of the sites included in the study.

All sites incorporate at least two zones within a 1 Km radius, whilst four sites incorporate three zones and three sites incorporate four

zones.

On the basis of this distributional evidence, we can perhaps begin to develop a model for domestic settlement in the Neolithic and Early Bronze Age of the Channel Islands. Two factors appear to have been significant in determining the locations of domestic sites: the first is proximity to the coast and the second is ecological diversity. Sites seem to have been preferentially located near to the coast, and near to the boundaries of two or more environmental zones, allowing the exploitation of a broad range of resources. This pattern is mirrored by the distribution of known settlement sites (also shown on [Figure 5.1](#)).

Table 5.2: Environmental Zones Included within a 1 Km Radius of Later Prehistoric Flint Scatter Sites

Site No.	Plateau	Valley	Plain	Mars	Sea
<i>Jersey</i>					
1.	yes	yes	yes	yes	no
2.	yes	yes	yes	no	yes
3.	yes	no	no	no	yes
4.	yes	no	no	no	yes
5.	yes	no	yes	no	yes
8.	yes	no	no	no	yes
9.	yes	no	no	no	yes
11.	yes	yes	yes	no	no
<i>Guernsey</i>					
12.	no	no	yes	yes	yes
13.	yes	no	yes	no	yes
14.	no	no	yes	no	yes
16.	yes	no	no	no	yes
17.	yes	yes	no	no	no
18.	yes	yes	no	no	no
<i>Alderney</i>					
19.	yes	yes	yes	no	yes

Inter-tidal Archaeology

If the distribution of flint-scatter sites (as well as that of known

Neolithic and Early Bronze Age settlements) suggests the coastal zone as the main focus of settlement, this pattern is underlined by recent discoveries in the inter-tidal zone. Holocene peat deposits have been recorded beneath the beach sand in the bays of St Ouen & St Brelade, Jersey, Vazon, Guernsey and Longis, Alderney, and these peat beds are exposed from time to time as a result of storms combined with spring tides. Archaeological material has been recovered from these peat deposits since the early years of the 20th Century (Sinclair 1916), but a series of storms in the spring of 1990 resulted in particularly large-scale exposures of peat.

In St Brelade's Bay, on the South coast of Jersey, a series of eleven birch stakes were discovered, forming an irregular D-shaped enclosure, 6 metres in width. The diameter of the stakes varies from 4 cm to 8 cm: some have bark still attached, and all have clear marks of stone axe blades on the sharpened end. The stakes are not substantial enough to have constituted a building, and the enclosure may represent either a fish-trap or a framework for drying and mending nets. Although no artifacts were found in association with the stakes themselves, archaeological material was recovered from the same peat horizon, including flint flakes and cores, stone tools and an Early Neolithic (c4800– 4250 cal BC) pottery lug.

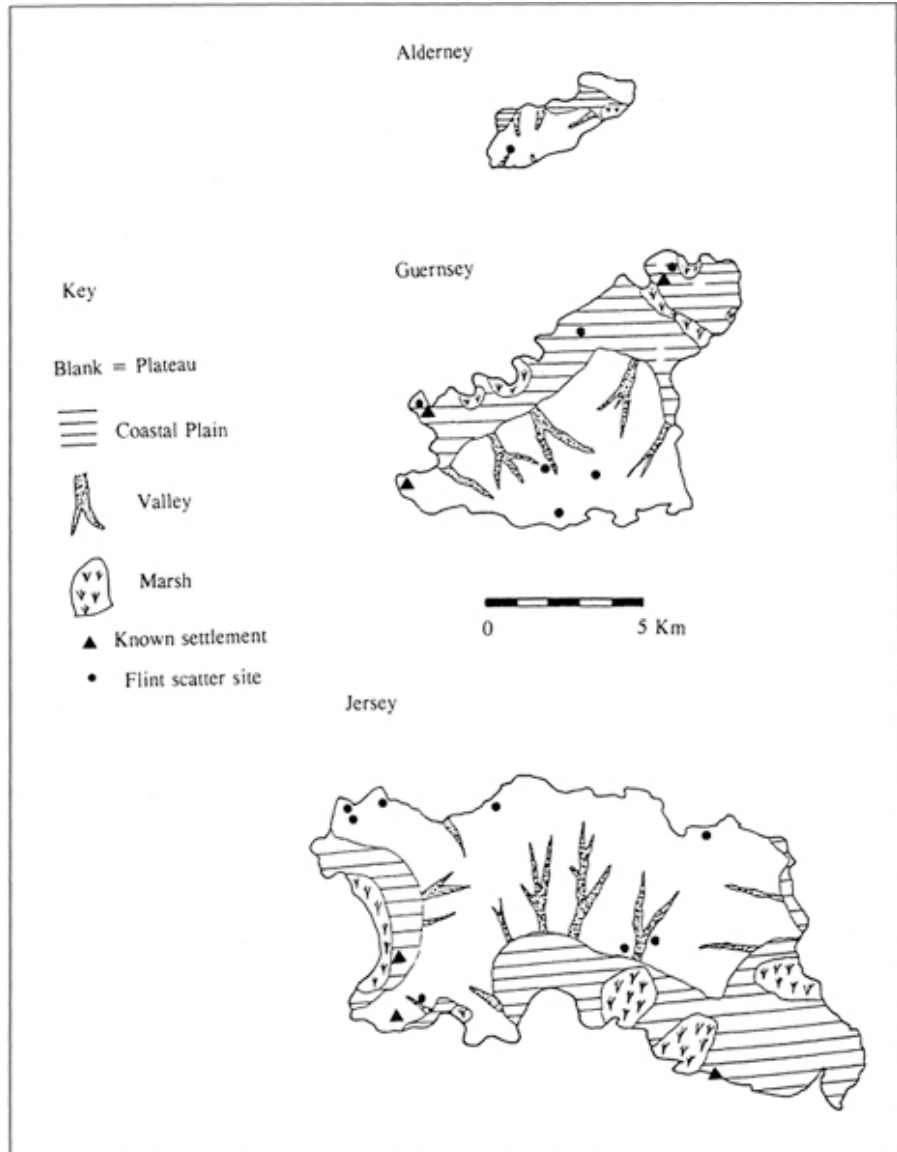


Figure 5.1: Distribution of Flint Scatter Sites and Known Neolithic/Early Bronze Age Settlements in Relation to Environmental Zones. Coastlines shown are estimated coastlines at c3500 cal BC

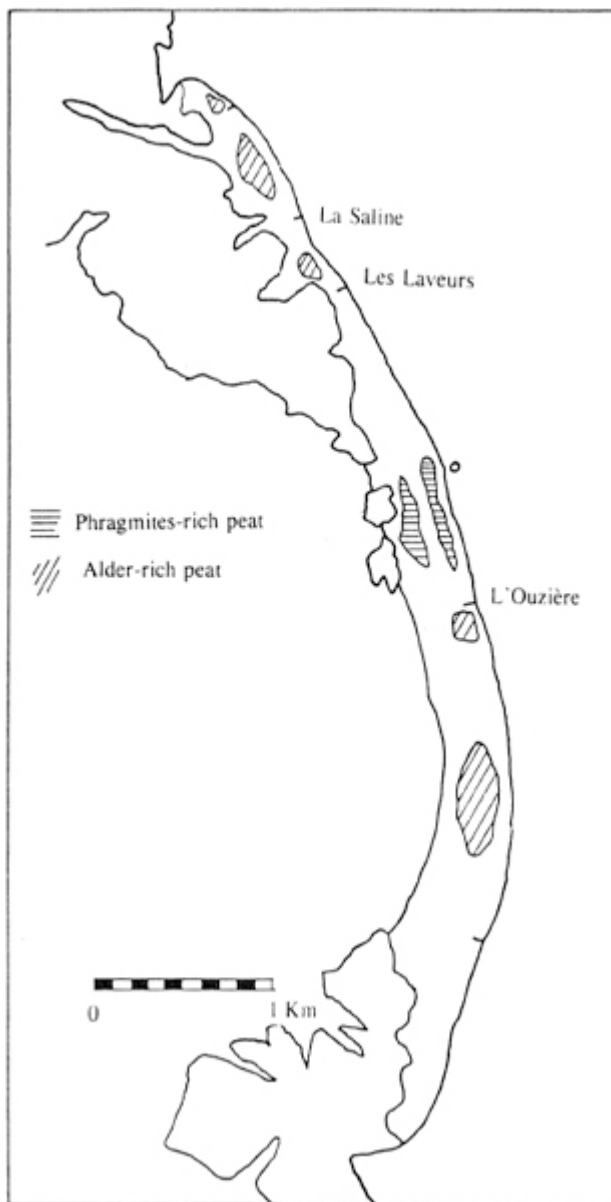


Figure 5.2: Inter-Tidal Peat Deposits in St Ouen's Bay, Jersey

The peat deposits in St Ouen's Bay are of particular interest. Two types of peat deposit were distinguished during the 1990 exposure, on the basis of plant macrofossils. The first type is characterised by large stumps and roots of alder, a tree which favours fenland conditions. A particularly important exposure of alder-rich peat was identified to the South of L'Ouzière slipway ([Figure 5.2](#)). Archaeological material recovered from this deposit includes a large quantity of Early Neolithic (c4800–4250 cal BC) pottery sherds, a fragment of a granite

quern and a series of worked flints. Two concentrations of charcoal were also located, with carbonized hazelnuts. This material is highly suggestive of domestic occupation, though animal bone is completely absent. The second type of peat deposit is characterised by the complete absence of tree stumps and roots, and by the abundance of *Phragmites* rhizomes: these deposits presumably correspond to areas of open water. An important deposit of *Phragmites*-rich peat was identified to the North of L'Ouziere slipway (Figure 5.2). The archaeological material recovered from this deposit is completely different from that described above: pottery and stone tools are absent, and flint is rare, though an in situ knapping floor was identified near the Northern edge of the deposit. Animal bone, by contrast, is abundant, and includes the almost complete skeleton of a calf: this skeleton shows no evidence of butchery, and probably represents an animal which died naturally in the shallow pool. Some of the animal bone from the deposit (all bones are of cattle, apart from two horse bones) may represent food debris disposed of in the pool. A series of cattle footprints were identified along the Eastern edge of the *Phragmites*-rich deposit, suggesting that the pool was used for watering livestock.

The peat deposits in Vazon Bay, Guernsey, and Longis Bay, Alderney, have produced a range of archaeological material, including a polished stone bracelet of Middle Neolithic (c4250–3250 cal BC) type (Patton 1990). Recent research has revealed animal bone from the Vazon peat, including the almost complete skeleton of a calf. Material from the peat deposits at Longis includes both worked flint and worked wood (hazel).

The inter-tidal evidence provides further support for the model of domestic settlement developed above. The St Ouen's Bay evidence in particular provides an illustration, on a micro-regional level, of the emphasis on ecological diversity suggested by the distribution of flint scatter sites. A settlement in the area of L'Ouziere would be within easy reach of both good agricultural land to the East (now covered by dunes), and the sea, which would provide a range of resources, whilst the marshland itself would provide wildfowl and freshwater fish, such as eels, as well as a source of fresh water for people and livestock.

BEYOND SUBSISTENCE: A SOCIALLY ORDERED LANDSCAPE

Despite the obvious limitations of the data-base, recent research has made it possible to develop a model for settlement in the Neolithic and Early Bronze Age of the Channel Islands. Sites seem to have been preferentially located on or near the coast, and near to the junction of

two or more environmental zones. On one level, this can of course be seen as a relatively simple reflection of the subsistence economy of early farming groups, with the exploitation of coastal resources providing an important nutritional safety net against the possibility of crop failure or the loss of livestock through disease. There are indications, however, that the distinction between coast and interior, between high and low land, took on a much deeper significance in the way in which the landscape was conceptualised and socially structured. To understand the social construction of the landscape we need to consider the distribution of megalithic monuments in relation to the settlement model developed above.

The passage graves of the Channel Islands belong to a group of monuments whose distribution extends along the Atlantic coast of Brittany and Central-Western France (Giot et al. 1979; Patton 1993). The primary assemblages from the Channel Island monuments (Patton 1995a) date to the Middle Neolithic period (c4250–3250 cal BC). [Figure 5.3](#) shows the distribution of passage graves in the Channel Islands. The most striking feature of this distribution map is the distinction between Jersey on the one hand, and Guernsey and Herm on the other: on Guernsey and Herm, the passage graves are all located on the coastal plain, in essentially similar locations to the known settlements and flint scatter sites (see [Figure 5.1](#)), whereas in Jersey they avoid the coastal plain completely, and are in most cases located some distance from the coast, on the edge of the plateau. This distinction is further illustrated by [Table 5.3](#), showing the position of Channel Island passage graves in relation to Ordnance Datum.

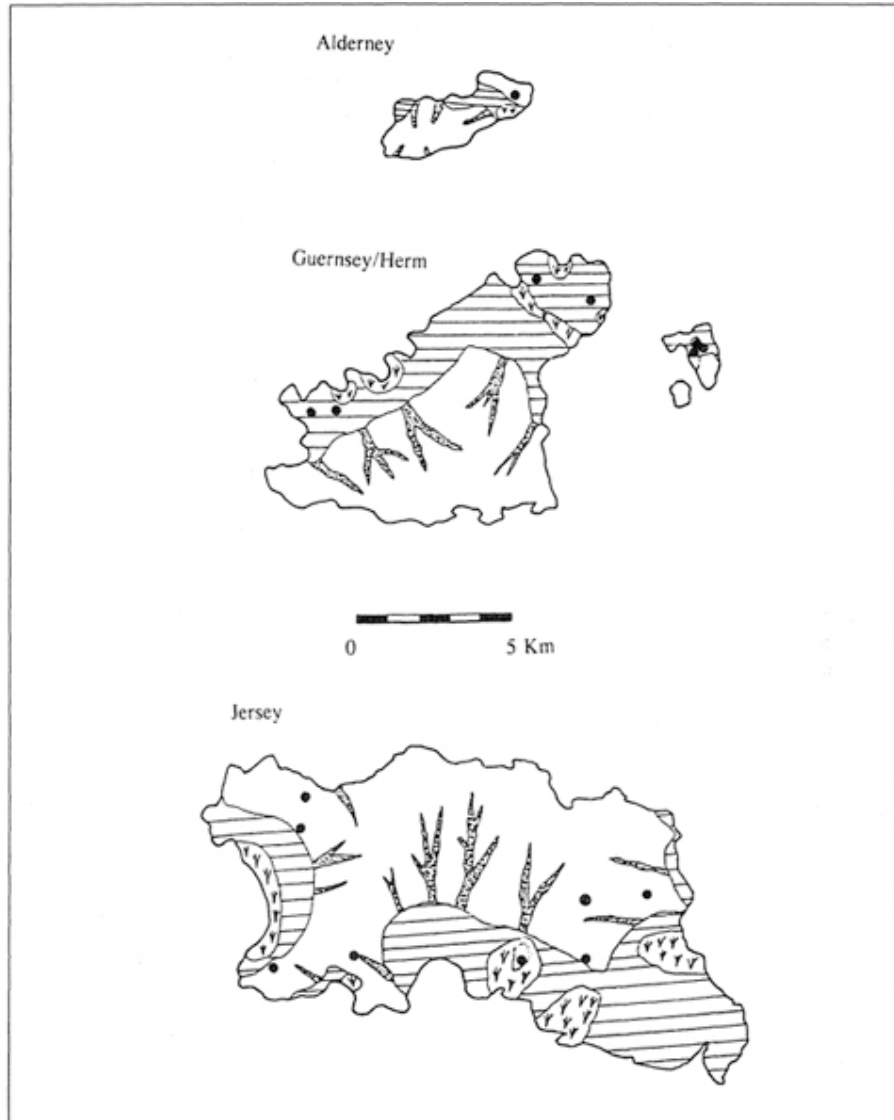


Figure 5.3: Distribution of Passage Graves in Relation to Environmental Zones. Coastlines shown are estimated coastlines at c3500 cal BC. For key to environmental zones, see [Figure 5.1](#)

Table 5.3: Channel Island Passage Graves: Heights above Ordnance Datum

Monument	Height	Monument	Height
<i>Jersey</i>	(in Metres)		(in Metres)
La Hougue Bie	86	Le Déhus	15
Faldouet	66	La Creux-ès-Faies	4
Le Mont Ubé	42	Herm Site 6*	5
Grantez	63	Site 12*	5
Le Mont de la Ville	50	Site 13*	5
La Hougue des Geonnais	72		
La Sergenté	42	<i>Alderney</i>	
Guernsey La Varde	18	Les Pourciaux South	18

* See Patton (1995a) for details of these sites.

This pattern is not, as one might suspect, simply a feature of differing topography on Jersey and Guernsey: land on Guernsey rises to over 100 Metres, yet none of the surviving monuments is higher than 18 Metres, in contrast to Jersey, where none of the monuments is located on land lower than 30 Metres. It is surely no coincidence that the largest of the Channel Island passage graves, La Hougue Bie, has the highest position (86 Metres) and the most inland location. [Figure 5.4](#) shows the location of passage graves in Jersey, with the sources of stone used in their construction (based on geological work by Mourant, in Hawkes 1937). Most of the monuments are built of stone taken from the immediate vicinity of the sites themselves, but La Hougue Bie incorporates stone from a range of locations around the Eastern half of the island. This evidence, together with the fact that La Hougue Bie is very much larger than any of the other monuments, suggests a hierarchy of monuments, with La Hougue Bie serving a larger area at a higher level of organisation, rather like the relationship between a Medieval cathedral and the parish churches within its diocese. Taking this evidence in relation to the settlement model developed above, we might suggest that in the Middle Neolithic of Jersey (but not Guernsey), the journey inland and uphill from the coast was conceptualised as a journey from secular into increasingly sacred space. From a structuralist standpoint, we could go further than this, and suggest a series of conceptual oppositions, for example:

<i>Coast</i>	<i>Inland</i>
Low land	High land
Domestic space	Sacred space
Living communities	Ancestors

These conceptual oppositions are likely to have been significant in the establishment and negotiation of power relations between individuals and groups. That this model applies only to Jersey, and not to Guernsey might seem strange, considering that the islands are so close to one another (28 Km), but there are other cultural differences between the two islands, evident from the archaeological record. The assemblages from the Jersey passage graves, for example, are dominated by a particular type of decorated pottery, the “Vase-Support”, which is totally absent from Guernsey and the other islands. There are also indications of a core/periphery relationship between Jersey and the other islands, based on control over the circulation of stone axes imported from the European mainland (Patton 1991b).

The pattern outlined above seems to have broken down completely in the Late Neolithic and Chalcolithic periods (c3250–2250 cal BC). During this period, the passage graves of the Channel Islands (as elsewhere) were deliberately and systematically sealed and abandoned (Patton 1995a & b). The monuments which replaced them fall into two categories: gallery graves and small cists, the latter often surrounded by small stone circles (Patton 1995a). The distribution of these monuments (Figure 5.5), both in Jersey and in Guernsey, is concentrated on the coastal plain. The distinction between Middle Neolithic and Late Neolithic/Chalcolithic monument distributions is underlined by Table 5.4, showing the heights of Late Neolithic and Chalcolithic monuments above Ordnance Datum.

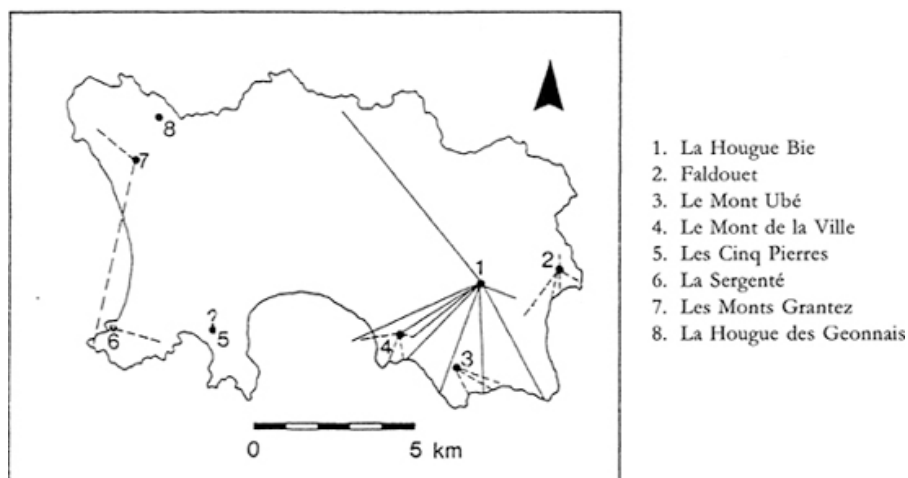


Figure 5.4: Distribution of Passage Graves in Jersey, showing Sources of Stone used in their Construction

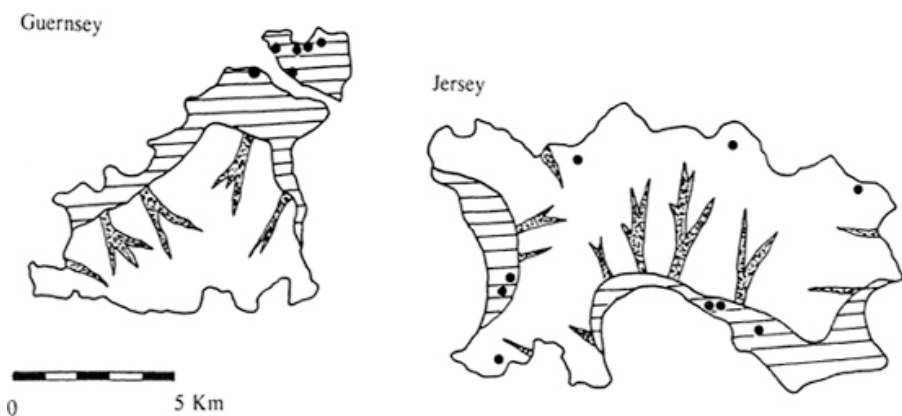


Figure 5.5: Distribution of Late Neolithic & Chalcolithic Monuments in Relation to Environmental Zones. Coastlines shown are estimated coastlines at c2500 cal BC. For key to environmental zones, see [Figure 5.1](#)

In Jersey, the distinction between domestic and secular space seems to have broken down completely, a fact underlined by the direct association of a settlement, a small cist (“The Ossuary”) and two menhirs at Les Blanches Banques (Patton 1995a). In Guernsey, the Chalcolithic re-use of the long mound of Les Fouaillages is similarly associated with a settlement, and the nearby cist of La Platte Mare may also be associated. The situation in Guernsey is somewhat more complicated, in that there does appear to be a concentration of monuments in the Northern parish of Vale: this area had become a small island as a result of rising sea-levels, and the “Braye du Valle”, which separated it from the rest of Guernsey, was only reclaimed in the 19th Century. The settlement at Les Fouaillages shows that this area was not exclusively reserved for ritual activity, and the concentration of monuments in this area does not necessarily imply that it had special significance: it may simply be that the separation of the Vale from the rest of Guernsey throughout the Medieval and Post-Medieval period, combined with the poor quality of agricultural land in this area (mostly covered by sand dune) resulted in enhanced preservation (cf Hibbs 1986).

The Late Neolithic and Chalcolithic period was also characterised by significant environmental change, associated with rising sea-levels. The palaeoenvironmental evidence (Jones et al. 1987, 1989) suggests that most of the sand barriers which separated the coastal marshlands from the open sea were breached during this period, leading to the loss of the economically valuable marshland zone. The sand which had formed these barriers was pushed inland to form dunes, especially in the Northern part of Guernsey (Vale), the Western coast of Jersey (Les Blanches Banques), and the Southern and Eastern coasts of Jersey

(St Aubin's Bay & Grouville Bay). This dune formation resulted in a further loss of valuable agricultural land on the coastal plain. These environmental changes would have put considerable pressure on human communities, forcing them into increasingly marginal environments, as shown by the Chalcolithic settlement of Les Blanches Banques, situated within sand dunes (Patton & Finlaison in press) and by the Early Bronze Age settlement of La Moye I, situated on plateau land in the South-West of Jersey, in an area of exceptionally thin granitic soils (Patton 1988).

The abandonment of passage graves, and their replacement by other monument types is part of a wider geographical phenomenon which can be identified in many regions of Atlantic Europe. It has been argued elsewhere (Patton 1993) that this transition reflects the collapse of the Middle Neolithic social formation and its replacement by another social formation, less centralised and more individualistic in orientation. A number of factors may have been significant in precipitating this collapse: intra-group and intergroup competition within the Middle Neolithic social formation would have resulted in increasing demands for surplus production, placing pressure on both social relations and on the natural environment. In the Channel Islands, the loss of valuable land as a result of rising sea-levels could only have added to these pressures.

The specific relationships (both geographical and conceptual) between domestic and sacred space identified in the Middle Neolithic of Jersey must be understood in the context of the social formation which produced them. Moreover, whilst the passage graves themselves belong to a broader geographical tradition, this specific structuration of the landscape appears to be an insular phenomenon, restricted not only to the Channel Islands, but specifically to Jersey. This must be seen, therefore, as a social construction of a particular island landscape, according to a more general world view within which domestic and sacred space were separated from one another, and access to the latter controlled and restricted. This world view is evident (Patton 1993) from the construction of the Armorican passage graves themselves (relatively small chambers, separated and hidden from the outside world by long narrow passages and covered by large mounds or cairns) and from the nature and position of carved representations within them (highly stylised representations, meaningful only to those who have been initiated, and generally invisible from outside the passage). Neolithic communities in Jersey seem to have taken this separation of sacred and domestic space a stage further than their counterparts in Guernsey, in imposing it not

only on the structure of the monuments themselves, but also on the way in which the landscape was ordered and conceptualised. That this world view was specific to the Middle Neolithic social formation, however, is demonstrated by the transformation in the way in which the landscape was ordered during the Late Neolithic and Chalcolithic periods.

Table 5.4: Late Neolithic & Chalcolithic Monuments in the Channel Islands: Heights above Ordnance Datum

Monument	Height	Monument	Height
<i>Jersey</i>	(in Metres)		(in Metres)
Ville-ès-Nouaux	6	L'Islet	8
Les Platons	111	Herm Site 1	8
Le Couperon	18	Site 2	8
The Ossuary	18	Site 3	8
Beauport	66	Site 4	8
Guernsey Les Fouaillages	7	Site 7	11
La Platte Mare	7	Site 11	6
La Mare-ès-Mauves	7	Site 15	4
Martello Tower No.7	7	Alderney Tourgis	48
Rousse Tower	8		

Acknowledgements

I would like to thank the following colleagues for comments and discussion on aspects of the research presented in this paper: Dr Barbara Bender, Dr Bob Jones, Dr David Keen & Dr John Renouf. Much of the fieldwork in the Channel Islands was carried out during the tenure of a research grant from the Leverhulme Trust.

The landscape of extraction: Aspects of the procurement of raw material in the Neolithic

David Field

INTRODUCTION

The Neolithic flint mines of southern England provide the earliest evidence of raw material extraction in Britain. A programme of surface survey and air photograph investigation by the Royal Commission on the Historical Monuments of England (RCHME), as part of a survey of Neolithic flint mine and enclosure sites in England has provided details of both the extent of the areas of extraction, and also a context for some of the early archaeological excavations which examined the nature of the mining techniques. The intention here is to discuss the evidence as it relates to the wider landscape.

RAW MATERIALS

A wide variety of raw materials were utilized by Neolithic communities, perhaps as wide as today, though conceivably with a restricted range of final applications. The products of different trees growing in contrasting ecological zones are likely to have been exploited as are various plants. Unfortunately little evidence of procurement of these exists, beyond the indication that some of the woodland was managed. Artifacts made from durable raw materials, have survived much better and form an important component of the archaeological record. A number of lithologies are present across southern England from which these materials would have been obtained, and no doubt visiting them formed an important part of procurement strategies. Sandstone, and some chert was available from the Greensand (sandstones incidentally were not grouped by the implement petrology survey and the large number of quarries of all periods deserve investigation). Chert from Portland was transported as far as Cornwall in the west and Surrey in the east during the

Mesolithic period (Palmer 1970), while further west other stones were available. The extensive chalklands of southern England provide a unique resource of durable raw material, for seams of flint are widespread in these deposits. They outcrop on valley sides, are cut by rivers, exposed by wave action, and occur as worn pebbles on beaches and in river gravels.

The raw material for the flint tools found in the Mendip caves, which must have come from the Wiltshire Downs suggest that the chalk played its part in procurement strategies quite early in the post-glacial period, and by the later mesolithic the location of sources of raw material must have been established through both tradition and folk memory.

MESOLITHIC BACKGROUND

In her study of *The Production and Distribution of Mesolithic Axes in Southern Britain*, Verna Care (1979) suggested that with the exception of those from the rivers, axe distribution provides an indication of location of the centres of axe production, and thus of raw material source. She concluded that much of the material came from the areas of clay-with-flints which in certain places overlies the chalk, suggesting that much of the flint artefact material formerly known as Campignian, the crude picks etc, that is found in these areas in some quantity, was in fact for grubbing up flint nodules. She goes on to suggest that these surface sources, utilized during the mesolithic, continued to be used during the neolithic, and with intensification of use in some areas, may have developed into flint-mines. The only problem with this is that while known flint-mine sites are invariably close to such deposits they are not primarily located in dense areas of Clay-with-flints. Conversely areas of dense Clay-with-flints, in Hampshire or on the North Downs, for example, have little evidence of mining. Sites on the Clay-with-flints, however, do contain suites of artifacts that include scrapers and broken polished axes, and it maybe that activities other than raw material procurement can be inferred. Many of the flint nodules from the Clay-with-flints are frost shattered and of poor quality, but Julie Gardiner (1984) has suggested that some areas in Sussex contain much better quality material than others, and it may be that the deposit is very variable.

Using the same area, Mellars & Reinhardt (1978) looked at patterns of Mesolithic land use in southern England from a geological perspective, and contrasted the distribution of axes with that of microliths. Their plot of tranchet axes is almost identical to that of Verna Care though much greater emphasis is placed on the river

valley finds. Microliths on the other hand cluster on the junctions of sand divisions in the Weald, and there is a near absence on the chalk, apart from a few examples along the coast around Beachy Head where there are overlying superficial tertiary deposits. Artifacts seem to cluster particularly at the junctions of the Greensand divisions; and this is thought to reflect the greater variety of plants that can be exploited from such locations. It seems likely that, as they suggest, different activities are represented here; perhaps hunting on the sands, exploitation of plant resources of a different nature on the chalk and clay with flints, and activity involving axes, perhaps settlement, in the river valleys and along spring lines. In other words, activities effectively exploiting the *whole* of the landscape.

THE NATURAL LANDSCAPE

The limited palaeo-environmental evidence from Brooks and Offham in Sussex (Drewett 1977), Wingham and Frogholt in Kent (Godwin 1962), and sites around Stonehenge in Wiltshire (Allen, Entwistle, & Richards in Richards 1990) suggests that the chalk was wooded during at least the earlier part of the Neolithic. Analyses of the molluscs from John Pull's excavations at Cissbury, Church Hill, and Blackpatch in Sussex, provide support for this view, suggesting that the mine-shafts were originally dug in a woodland environment which by the time of the later shaft siltings was becoming more open (Evans & Jones in Mercer 1981).

At Easton Down in Wiltshire, which is thought to be slightly later in date than the Sussex mines, the fauna is predominantly of woodland species but an open country component is also present. During excavations there, J F S Stone noted the presence in the chalk of several 'dud' holes, irregular in shape, and filled with angular flints and earthy chalk dust, but containing no cultural material, and he thought that these probably represented the boles of former trees.

SITES IN WESSEX

One of the most fragile sites is that of Easton Down, Wiltshire, situated at the head of a small re-entrant on the Porton Down Chemical Defence Establishment ranges. The area of activity here covers some 16ha, although most of it has been destroyed by ploughing, leaving only a small cluster of shafts and spoil heaps extant. Sherds found above one shaft suggest that this agricultural episode may have commenced as early as the Romano-British period. Some surface features were planned by J F S Stone in the 1920's, and subsequently

by Colin Bowen in 1979. In all, at least 90 shafts have been recorded. They exploit a horizontal seam of nodular flint that occurs c3m below the surface and almost certainly outcrops around the sides of the valley.

Of the shafts excavated by Stone in the 1930's (Stone 1931a & b; 1933, 1935) four had been abandoned before reaching the flint seam, suggesting that they may have been for prospecting, although the depth of one, at 3m could point to irregularities in the seam. These shafts were all relatively narrow, in one case only 1.25m wide, clearly space enough for only one miner. Other more successful shafts were wider, c 5m across, and invariably oval in plan. They were undercut at the flint seam but the unstable chalk appears to have rendered the mining of galleries here impractical.

The mined area was flanked on both the east and west by traces of settlement. Excavation to the west of shaft B82, revealed shallow scoops, some sub-rectangular and others more irregular in plan, each surrounded by stakeholes and each associated with Beaker pottery. A flint axe together with other flint refuse from the floor of one of these hollows was seen as linking them to the mining activities. Three strange unexplained ashpits, filled with pulverized bone and ash mixture, and one containing the skeleton of a fox terrier like dog, were also found associated with these hollows. Partially destroyed by these features were remnants of an earlier structure associated with 'Windmill Hill like pottery' (Stone 1933, 232).

By contrast the six shallow extraction pits discovered at Durrington during the construction of a pipe trench seem almost insignificant, but they were probably part of a much larger group that now lies beneath a nearby housing estate. Although no longer recognisable on the surface, they demonstrate that where the chalk was stable enough, gallery mining was practised at a depth as shallow as 2m. The shafts here are little more than 200m from the henge at Durrington Walls, and both were evidently ploughed down by the same field system (the Walls referring to the lynchets not the henge). If the mines were earlier, perhaps contemporary with the pre-henge settlement, then the siting of a ceremonial monument within a landscape of hollows and spoilheaps is of interest. A St J Booth and J F S Stone (1952), however, thought that the shafts and ritual complex were contemporary and if so it adds support to suggestions that the role of henges incorporated the exchange and dissemination of axes.

SITES IN SUSSEX

Moving into Sussex, Nore Down presents a very different picture. Two

parallel ditch like features were originally thought to be the side ditches of a long barrow (Aldsworth 1979), however, excavation has shown that they relate to a series of shafts (Aldsworth 1983). The surface evidence suggests that they consist of adit-like quarries following a seam. Although not recorded by the excavators, a more conventional shaft with spoil-heap sits alongside.

At Long Down, near Chichester, there is further evidence of this technique, with four features that could tentatively be described as adit-like-quarries. Alternatively they may reflect the pairing of shafts, a feature also noted at Grimes Graves, and explained by P J Felder, a dutch mining engineer as a technique that allows an escape route in the event of collapse (Felder 1981,60). If so, the technique may be seen as a late development, perhaps in response to fatalities seen at some of the earlier mines such as Cissbury (Lane-Fox 1876,375; Rolleston 1879; Pull MSS Worthing Mus).

One of the features at Long Down was partially excavated by E F Salisbury in 1958, and described as a shaft (Salisbury 1961), however, it is now not clear how extensive the excavations were, though they produced typical axe roughouts and broken antler. It is clear from the new survey of the site (RCHME forthcoming), that certain details can be inferred from the surface remains, as the spoil-heaps contain a wealth of chronological information. The mined area, although now quite compact, was probably originally more extensive. Unfortunately, a series of ploughing episodes has eaten in to the complex but it is possible to see remnants of shafts to the north, as well as in the ploughed field to the east and in woodland to the west. A major strip lynchet running from north to south also seems to cover activity, as exposures from fallen trees and rabbit scrapes along its length display the presence of flint waste material for almost 200m north of the main complex.

The sites grouped around Worthing are completely different. Here the flint outcrops were extensively utilised by Neolithic miners. At least four mine complexes are known: Harrow Hill with at least 160 shafts; Blackpatch, with over 100 shafts now mostly bulldozed and ploughed; Church Hill, Findon with about 26 shafts (though only about 20 are now visible and these are in the process of being levelled by ploughing; and Cissbury, the largest where in excess of 270 shafts are now known.

Cissbury is the most extensive and dramatic of the Worthing sites, and is partially overlain by a hillfort. It occupies a prominent chalk spur that overlooks Worthing, and has commanding views of the coastline from Beachy Head to the Isle of Wight. The site comprises a

major univallate Iron Age hillfort with evidence of occupation and cultivation into the Romano-British period, all of which partially overlies an earlier, Neolithic industrial landscape of mineshaft hollows and spoilheaps.

The most striking feature of the plan ([Figure 6.1](#)) is the scale, extent and preservation of the flint mines and their spoil heaps in relation to the earthworks of the hillfort. The latter clearly overlies the flint mines, a point of early archaeological debate, for shafts occur both within and outside the rampart; the counterscarp bank, which lies immediately outside the hillfort ditch, also overlies former mineshafts. Spoil dumps derived from mining are visible beside the bank, while the hillfort rampart in the area of the mines is extremely irregular; it is likely that its course was determined by the presence of a linear spoil heap. Such spoil heaps also occur within the rampart and the linearity is perhaps explained by the location of the mineshafts that appear to follow the contours of the hillside. From this observation it appears that mining started on the north-western side of the hill where the slope is extremely steep and soilcreep and erosion are likely to have exposed the flint seam. Unfortunately, the hillfort ditch obscures details, but spoil can be seen underlying the counterscarp bank in this area. If initial quarrying followed the contour, it would make sense for the deep mines to follow suit in order to exploit the full potential of the seam.

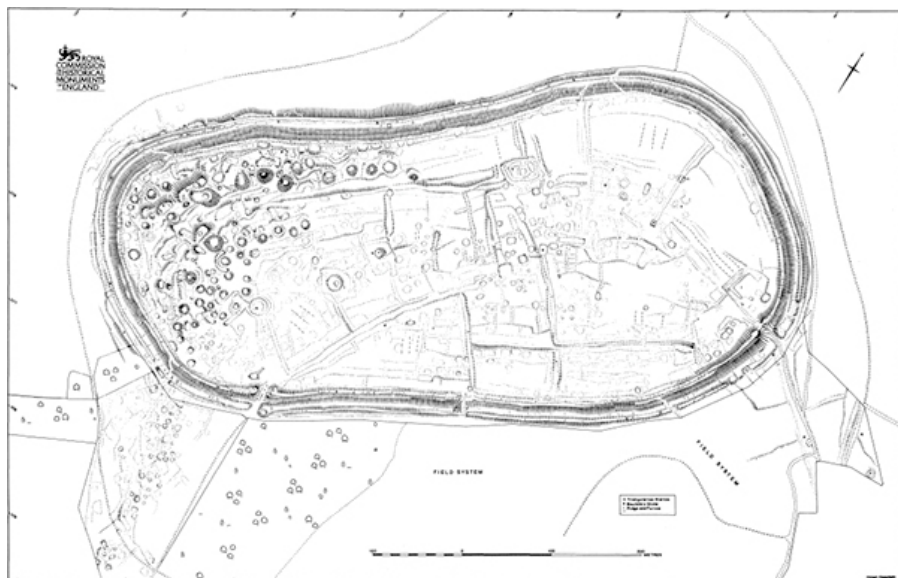


Figure 6.1: Analytical surface survey of Cissbury hillfort, Sussex, showing the extensive flint mine complex with encroaching 'celtic' field system. Crown Copyright: RCHME

The interior of the hillfort has been occupied or utilised from at least the early Iron Age. It was probably at this time that the field system, which obscures much of the Neolithic landscape, was created. Shallow hollows, undoubtedly mineshafts reduced by ancient ploughing can be traced over much of the southern part of the hillfort. Because of this agricultural episode, it is difficult to reconstruct the full extent of the mined area, although excavations of a field lynchet in the eastern part of the hillfort (Curwen and Ross Williamson 1931) recovered flint-knapping debris indicating that activity related to the mines extended over a considerable area. The sub-rectangular enclosure in the northern part of the hillfort, immediately east of the flint mines was excavated by Lane-Fox and assigned a Neolithic date on the strength of the flint work recovered from the ditch (Lane-Fox 1869,63). The enclosure is certainly earlier than the field system as a field bank abuts it, but its form would be unusual in a Neolithic context and it seems more likely that it overlies Neolithic deposits. Further confusion over the full extent of mining is caused by the numerous Iron Age pits and Romano-British hut sites that cover the north-eastern part of the hillfort interior. Despite this later activity, the survey suggests that mining covered a minimum of 9ha and consisted of at least 270 mineshafts.

Many of the heaps, mounds, and depressions around the shafts have been created by the dumping of spoil excavated from the shafts, although some are likely to represent working hollows and concentrations of manufacturing debris. Such features are little understood because excavation has tended to focus on the shafts. John Pull investigated one such area on the spur to the south of the hillfort in the 1950s and found it to be a manufacturing workfloor comprising a solid mass of struck flint flakes (Pull MSS Worthing Museum). An eroding area adjacent to one shaft was also recorded by RCHME; it consisted of a concentration of struck flint flakes of various sizes ranging from large cores to minute spalls. This must be an *in situ* deposit representing contemporary flintknapping and is confirmation that artifacts were manufactured on site.

Perhaps the most developed of the English flint mines is the group on Harrow Hill. Here, shafts densely cluster on the north-east side of the hill, with occasional outliers on the slopes, which may indicate early prospecting. Bounded by lynchet like scarps in the west two main areas of mining can be identified, divided roughly into north and south groups and characterised by large and small mine pits respectively. It seems likely that opencast quarrying of the flint seam began where it outcropped around the hillside. Recent excavations by

Robin Holgate (1991,39) have confirmed that quarrying certainly took place a little further south, and it is possible to suggest that deeper shaft mining began as extraction moved into the hillside. The linear spoil heaps that follow the contour in the north and east around the edge of the site, probably reflect the position of these early workings. Large shafts of up to 19m diameter occur in the north and east, with craters surviving to a depth of 1.8m. These also seem to follow the contours around the north-east part of the hill. Most of these larger shafts appear to be mined independently of the surrounding shafts, but there are a number with access channels on the downslope side. In a few cases shafts appear to be connected and we can perhaps see here development of the technique of pairing of shafts seen at Grimes Graves, and of the adit like extraction processes that occur at Long Down. In the south, a series of smaller, shallow, pits occur of no more than 6m in diameter and 0.3m deep. There is little overlap but where it does occur there is a suggestion that the small pits are later than the large ones. At first sight this is difficult to account for, but there does appear to be an explanation.

The flint at Harrow Hill is sheet flint of the Old Nore Beds, part of the Newhaven Member of the Sussex White Chalk Formation (Mortimer 1986). Curwens excavations encountered three seams of this flint (1926), and Felders' four (Mortimer 1983), all of which were tilted from north to south, that is, against the slope of the hillside. If mining moved uphill (ie into the hillside) and the seam dipped away, the necessary shafts would rapidly become very deep. However, a second seam would soon have been encountered. At first this too may have been open cast quarried where it outcropped, but it too would soon require ever deeper shafts.

Excavations of one of the large shafts, Pit 21, to the north-east of the enclosure, by Curwen demonstrated that this was indeed the case. He noted that an upper seam outcropped where the shaft had been dug, the shaft itself had largely destroyed the opencast workings, but a recess in the wall of the shaft provided evidence that the seam had been worked. The second seam outcropped some 30m to the north of the excavated shaft, in the area of Pit 22. Curwen described this as opencast activity where the seam ran close to the surface. Galleries did not extend very far, as in order to ensure maximum extraction between shafts, it was an easy task to sink another pit to this level alongside the main shaft. Curwen noted that there were no signs of such working on the surface as it had been obscured by spoil dumps from the deeper excavations.

Holleymans excavations in the Iron Age enclosure on the summit of

the hill (1937), encountered three mine shafts and part of a fourth. All were narrow, two under c2m diameter, and exploited the same two seams that lay close together at a depth of between 8 and 13 feet. His illustration however suggests that the seams of flint here are rising with the hillside, in contrast to the seams further north which were dipping. These seams, close together and close to the surface were exploited with narrow shafts and short galleries. Thus the smaller pits in the south, appear to reflect an economical method of extracting material from seams that are relatively close to the surface, rather than as a chronological marker of activity of a different period.

The site at Blackpatch lies on a chalk spur that runs south, from the slopes of Blackpatch Hill. Unfortunately the mined area of some 1.5ha was bulldozed in the 1950's (Ratcliffe-Densham & Ratcliffe-Densham 1953) and subsequently repeatedly ploughed, and little now remains above ground. Only twelve shafts are now visible. Shallow and diffuse, and nowhere more than 0.25m deep. They are well spaced and presumably represent some of what may have been the better preserved examples before the bulldozing episode. Shallow spoil-heaps can also be discerned in places, but are too diffuse to plot. In the south-east a round barrow is sited over mining debris. However, a plot taken from air photographs of soil marks shows some 60 shafts (RCHME forthcoming), some of which may have been multiple, all surrounded by bulldozed spoil.

As a result of this damage it is not possible from the surface evidence to determine the relationship of features or of the position of working hollows. In general, however, the shafts are placed along the false crest of the ridge, and in the east do not extend beyond the north-south farmtrack. It seems most likely that the flint seam outcropped on the false crest, and was worked in from the west. A question remains as to why the shafts did not exploit the east part of the ridge. Excavations during the 1920's by John Pull encountered one shaft to the north of the site that had no galleries at the base, and a second adjacent to the track in the east, that had galleries on the west side only (Pull 1932; Worthing Mus archive), perhaps indicating that the flint seam was not continuous and may have faded out.

Overlooking the village of Findon, Church Hill rises to 154m OD, and a large number of archaeological features can be traced across the hilltop. The mine-field lies immediately south of the summit, at the interface of chalk and clay-with-flints, and a second group is sited in a north-south linear fashion on the west slopes of the hill. Unfortunately the main site has been ploughed for a considerable period, leaving only slight traces of earthworks on the surface, and the shafts are now

nowhere more than 0.3m deep. Nevertheless this complex is relatively compact covering little more than 1ha.

Today no more than 19 shafts can be identified as earthworks, although 26 had been noted by earlier workers. The ploughing has blurred detail and while a number of linear spoil-heaps are still visible, no working hollows can be detected. In the south-west a large and prominent circular mound, almost certainly a barrow, lies over spoil-dumps. Some spoil appears to have been pushed downhill for there are linear arrangements in the east and south, but elsewhere spoil lies centrally between groups of shafts. In the centre of the mined area an angled linear spoil heap remains a prominent feature and probably overlies hidden shafts. The process of extraction here is difficult to establish, but it seems likely that mining started on the steep slopes in the east where the flint seam may have outcropped, and subsequently worked towards the summit. Unfortunately however, the remains are too damaged to be certain.

A series of some 45 scoops and depressions extend north-south along the west face of Church Hill, and have become referred to as the Tolmere Pond site. Of varying sizes from 10m diameter down to 3m, they are perched on a steep slope, and encroached on by ploughing both ancient and modern. As seen today however, the site cuts across the contours, and does not appear to be following any particular flint seam. Some of the depressions nearer the summit appear authentic enough but the sharp profile of others suggests a more recent purpose, and the proximity of a lime kiln at the foot of the hill encourages caution.

Small scale excavations of one small pit by the Curwens (1927) encountered a number of Romano-British sherds sealing the shaft, but beyond digging for a short distance into the chalk fill, the investigation was not concluded. John Pull carried out further investigations in 1949 (Worthing Mus archive), excavating two pits, and he found them to bottom out at less than 2m. He noted pick marks in the sides and flint flakes on the floor of the pits, and also noted Romano-British material high up in the profile. Neither excavator mentions encountering a flint seam, and while their similarity to the smaller shafts at Harrow Hill should not be overlooked, it may be that some of these shafts were exploratory, searching the slope of the hill for a new seam.

A series of radiocarbon determinations carried out by the British Museum in the 1970s shows that the Worthing flint mine complex, of which Cissbury forms a part, is the earliest known in the country. Six individual determinations were obtained, ranging from 3390 ± 150

uncal be (BM-181) at Church Hill to 2700 ± 150 uncal be at Cissbury (Burleigh 1975,90), but too few to indicate whether the separate minefields were worked successively or not; and further radiocarbon determinations are needed to resolve the detailed chronology. It is important, however, to keep all of this in perspective for the shafts in the whole of the Worthing complex could be the result of no more than a single shaft being dug each year over a timespan of 700 years.

Even though the flint seams at these sites are extensive and might be expected to outcrop in a number of different locations, the mineshafts themselves are confined to restricted areas, a factor that was also noted by O G S Crawford (1926) in 1925. This observation could be interpreted in a number of different ways; the result of differential site survival; pressure on the use of land; an indication of adjacent land allotment or ownership in the Neolithic; or a fear that the seam might not be endless. Observations of earthworks related to extraction processes on the Wiltshire and North Downs suggest that by contrast medieval and post medieval chalk and marl quarries are often isolated and widely spaced. However, in the case of the flint mines there does appear to have been an attempt to extract the material methodically. In this respect the extremely busy surface plans must reflect equally busy activity below ground. The shafts are densely packed together, and the galleries are sometimes much more complex than some reports would suggest.

Since Cissbury was first investigated in 1865 some 26 shafts and 20 workfloors have been excavated in the Worthing complex. While some early reports suggested that galleries were a means of supplementing the flint obtained from the floor of the shafts, the primary aim was in fact to extract as much material from the seam as efficiently possible, while avoiding collapse of the chalk. Much was extracted from the shaft floor, but the shaft was primarily a method of providing access to the seam. The complexity is shown in Lane-Fox's (1876) plan of some of the Cissbury galleries, and later by John Pulls plan of galleries on the south spur at Cissbury (Worthing Mus archive), and much more recently, and perhaps the only accurate representation that we have, by P J Felder at Harrow Hill (1983). The galleries frequently interconnect with those of adjacent shafts, but in many cases this is circumstantial, for plans of the subterranean landscape show that in order to extract the maximum amount of material, invariably the whole floor area is mined away, leaving only a thin wall or pillar of chalk to support the roof.

Unlike the Cl9th gunflint mines where the method of extraction was systematically observed until the shaft was exhausted (Skertchley

1879), at present little pattern can be made of the Neolithic extraction methods. Underground restrictions may have resulted in a lack of accuracy in some plans, and in many cases there is a complete absence of plans that makes interpretation difficult. However, it may be that some of the straight galleries shown by Lane-Fox at Cissbury were designed to allow the use of ropes to haul large nodules from the face back to the shaft, whereas the short curving examples illustrated by Pull at Blackpatch are more individual in nature.

Occasionally, small windows were cut through these walls to provide reflected light. Even if mining commenced in an irregular manner, it seems to have developed into an organised operation if only on a local scale. It is not possible to say whether this was the result of accumulated and developing experience of extraction processes, or of an understanding of the efficiency and safety aspects involved, or whether it was considered socially necessary to cope with what might be seen as a group's non-finite resource. Other social considerations involving division of labour may also have been a factor.

EXCHANGE-COMMUNITIES

Except perhaps in the case of Easton Down, little is known at present of the communities who used the mines. Initial quarrying may have had its complexities, but it is not difficult to imagine that quarries utilized by foragers on their resource round would continue to be exploited by sedentary groups within the same area. However, the apparent sophisticated organisation and perhaps even technological specialisation involved in the Sussex deep mines suggests a complex procurement strategy, and co-operative venture far beyond occasional forays by distant groups to replenish dwindling flint stocks. The wide shafts have been interpreted as allowing up to 20 people to work in them at once (Felder 1981). The order of shafts invariably close together and following the contour in order to allow efficient extraction, and the comprehensive manner in which the subterranean levels were extracted all appears to suggest a well organised operation.

The chalk is also the location of many other monuments of Neolithic date, including causewayed enclosures and long barrows. These monuments and their landscapes, have been used to construct a number of territorial models, and the sheer number of monuments in the area can encourage a view of a thriving local economy. It seems possible that, as Drewett (1978, 27) suggested for Sussex, local communities were well versed in the techniques of mining and had

wide experience of the provenance of local outcrops. Exploitation of the flint may represent a specialised part of a local Neolithic economy, pastoralist or otherwise, and could have been a seasonal component of their broader economic base. Certainly access to good flint is likely to have influenced a local economy, but the part that it played in a regional context is more difficult to gauge. A number of possibilities present themselves: first, that local groups controlled the flint source, extracted raw material, and exchanged it when appropriate; second, that local groups controlled the flint source, but allowed others to exploit it; thirdly, that there was no local control but the mines were visited periodically by expeditions from other areas. If the last possibility is correct then one would expect to find no order to the mines, and the likelihood of friction must exist between different groups visiting the mines. If groups were visiting say Sussex, from Surrey, Kent, and Hampshire, it is strange that they ignored flint in their own areas. Unless of course the trek was of social importance in its own right. These questions, and others, for the moment remain unanswered.

PERCEPTION AND SYMBOLISM

The symbolic nature of the landscape to hunters and early pastoralists and agriculturalists is well known from ethnographic literature. Anyone who has surveyed in deep woodland will recall how every minor feature, even anthills take on a new significance. Ethnographic evidence, suggests that almost every aspect of landscape has symbolic significance to recent foraging groups, and many features are imbued with certain values of ancestral significance (Tilley 1994). Identifiable, dramatic, awe inspiring points in the landscape, at for example Penmaenmawr, Teivebulliagh, or Great Langdale, are obvious candidates and the same could be said for some flint mines. Cissbury for example is visible from the Isle of Wight on a clear day, and the North and South Downs escarpments can be seen from almost anywhere within the Weald and are major landscape features. Here the mines share similar sitings with other Neolithic monuments, and like causewayed enclosures, may have served other purposes, as focal points and gathering places for local communities.

There are of course a number of ethnographic examples that we might consider, and while none of them need provide a parallel, it is nevertheless important to take them into account. Thus R Gould (1977) writes of the Australian aborigines, foragers in this case, who on the one hand obtain stone from the surface close to the area of immediate use, and discard it immediately after use; they additionally

use stone obtained from quarries which they may visit rarely, and which are considered totemic, ancestral 'dreaming' places. Stone from these quarries is often moved vast distances and given to distant relatives of the ancestor, who in turn invariably consider it part of themselves, and use it preferentially even when better stone is to hand. A number of these examples could be used but when assessing British sites it is important to realize that any one group of mines could have been in use for in excess of 500 years. We should therefore expect social and economic needs and values, as well as procurement strategies, to change dramatically during such a long period.

It is widely understood that the shafts at flint mines were automatically backfilled with spoil from digging the next shaft. There are indeed examples of this, B1 at Easton Down for example, but it was not always the case. Shaft B49 at Easton Down as well as a number of shafts at Cissbury were left open for a considerable period, allowing weathering of the chalk and the development of turf lines or rainwash layers in the shaft silting. The open shafts at Cissbury seem to have resulted in accidents. Three skeletons were found during excavations there, and it is indeed open to debate whether they were miners. One was a deliberate burial (Rolleston 1879). The others, however, are likely to represent accidents. One was discovered upside-down and had apparently fallen into the shaft head first (Lane-Fox 1876). The other was at the entrance to a partially backfilled gallery where a roof fall had broken the individuals back (Pull MSS Worthing Museum).

That these shafts were left open, has implications for the manner in which the landscape was perceived by the miners. Effectively the mining destroyed the natural form of the landscape, and if some ethnographic parallels apply, would imply a corresponding disrespect for the ancestors. Conceivably however, this lack of backfilling was deliberate, for just as in the construction of the first monuments or in the creation of fields, it may have had great significance in demonstrating human control over nature. But there is also a practical side to this, for as many who have backfilled by hand will know, it involves much hard work, and after spending weeks extracting the raw material, backfilling may not have been considered an economic use of time. The filling of old workings adjacent to a new shaft with spoil from a new one is likely to be entirely circumstantial, depending on convenience when new shafts are opened in the vicinity.

The manner in which the mine group has attracted round barrows is dramatic. Two round barrows are present at Cissbury, both outside the hillfort rampart, but the extensive later prehistoric and Roman activity

there may have obscured others. However, amongst a cemetery of twelve round barrows at Blackpatch, three actually overlie shafts. One of these, Barrow 12, appears to have been constructed during the phase of mining, as Pull (1932) records that it was cut by a further shaft and in turn had spoil dumped on it. Others in the group were constructed of mining spoil, or most often of flint nodules, either completely or in part, one barrow being said to be composed of mined flint.

Pull also recorded the presence of twelve round barrows on Church Hill. These are no longer visible, but they were grouped around the summit immediately north of the main mine group. At least one however, lay directly over a mine shaft, and the single barrow noted on the RCHME plan (forthcoming), may also seal shafts. Such positioning helps suggest that the mines had acquired a symbolic aspect by the Early Bronze Age.

While much of this barrow material may have been scooped up from old spoil heaps and working floors, and it is possible to argue that some of the activity merely represented scavenging of earlier spoilheaps, there certainly appears to be *some* mining at a late date and the description of large numbers of nodules in barrows might even suggest that some shafts were dug for that purpose.

Such features are common at other flint-mine sites too. At Stoke Down, in Sussex there is a small group of round barrows, while at the Easton Down mines in Wiltshire, one of the barrows opened by JFS Stone revealed a single skull with a phallus like piece of flint propped against it (Stone 1934). Close by was a cemetery consisting of a row of six collared urns most of which contained cremated bone and which were covered by a thin layer of flint nodules.

This attraction of round barrows to Neolithic monuments is of course a theme that occurs elsewhere. Round barrows cluster around Barkhale, Robin Hoods Ball and Combe Hill. Ploughed out barrows occur at Whitehawk. Others lie inside the enclosure, and over a bank at Windmill Hill, while at White Sheet Hill, where a round barrow was actually constructed over the enclosure ditch, we have an example strikingly similar to the case at Blackpatch.

So much for the surface. What about below ground. Going down holes at any time can be frightening, and dangerous, and as we have seen, from the earliest times people have died in mines. Ethnographic accounts provide details of how some primitive societies view mining. At Wilgie Mia ochre mine in Australia, for example, religious belief considered it unsafe for the unauthorised to enter, and prohibited places were marked by stones. Mining tools could not be removed,

and miners had to walk out backwards in order that the spirits were not disturbed (Flood 1983).

Modern mines are not without their beliefs, for the ethnography of the historic period too, suggests that stories and legends are widespread, from the tin mines of Devon and Cornwall, to the medieval salt mines of Wieliczka, in Poland, or the recent coal mines of Rijkholt in Holland (Felder pers comm). Many of these involve pixies, or little people in miners clothing, and can be seen to acquire a modern interpretation in the cartoon characters of the Snow White story. These may simply be stories made up to help explain a fear of the unknown when disoriented in dark confined spaces below ground, but they are all remarkably consistent.

Why there was a need to extract such large amounts of flint remains unexplained. In Sussex there are many cliff exposures where material is easily available, and Drewett has drawn attention to the wide utilization of surface flint in Sussex. At Stoke Down there is a seam so close to the surface that fresh nodules are turned up at every ploughing, and yet these were ignored in favour of other seams at depth. The sheet flint at Harrow Hill and Blackpatch, while satisfactory for knapping purposes, could not be considered as useful as the large nodules from other seams that outcrop at for example Cissbury and Church Hill, only a short distance away. Some modern knappers have suggested to the writer that mined flint is not *necessarily* the best, and the present idea that Neolithic miners only aimed to extract the *floorstone* comes from the Cl 9th mining around Brandon, where large nodules with predictable characteristics and good sparking qualities were essential to a gunflint industry that was turning out tens of thousands of identical items.

Whereas former archaeological excavations have concentrated predominantly on the shafts themselves, principally the prominent ones. We need now to understand the *full* chronology, and within it the changing methods and nature of the mine sites. While analysis of the surface evidence will resolve some problems, it is also highlighting how little we know about the sites as a whole.

Rather than see these mine complexes as a highly organised response to a regional shortage of flint, it becomes possible to view each site as one of occasional activity, with for example only one shaft being dug every few years or so, and with an emphasis towards the end of that time on burial. The relationship between Blackpatch and Harrow Hill is another matter. Little over one kilometre apart, and both exploiting similar flint seams, the sophisticated organisation involved at Harrow Hill couldn't provide a greater contrast to the

picture emerging from Blackpatch.

Acknowledgements

I would like to record my appreciation to colleagues at the RCHME, in particular G Brown, J Donachie, D Me Omish, A Oswald, and P Topping who have all participated in the survey of flint mines, and indeed the latter who organised the project. M Corney for help and advice and particularly for arranging the Cissbury survey. D Cunliffe prepared the illustration of Cissbury. My gratitude is also expressed to the landowners and farmers on whose land the mines are situated, in particular the National Trust, and David Ryde for arranging access to the Porton Ranges. Dr Sally White at Worthing Museum and Mr and Mrs K Suckling of the Sussex Archaeological Society also provided much valuable help.

NEO – “Realism?”: An alternative look at the Neolithic chalkland database of Sussex

Miles Russell

INTRODUCTION

Recent studies of the Neolithic and Bronze Age of South Eastern England have, to a greater or lesser degree, been fairly generalised in their treatment of the primary archaeological material, synthesising the results of published or soon to be published excavation data. Recent field and research work conducted by the author has, however, indicated that the presently accepted model for Neolithic and Early Bronze Age settlement / monument / burial activity in south-east England is, for the southern chalkland zone at least, severely flawed.

This is due, in the main, to the sheer volume of unpublished archaeological data currently languishing in museum stores, library archives, county Sites and Monuments Records and private collections. The problems surrounding a specific type of unpublished archaeological database have recently been addressed (Gardiner 1984; 1987; 1990) and the validity of examining, recording and synthesising unpublished collections must surely be no longer in doubt. Any decision to ignore old data, sometimes considered to be misleading or ‘biased’ due to supposedly ‘unscientific’ recording procedures employed at the time of collection, will, with large amounts of primary archaeological material being excluded from the contemporary debate, serve only to prejudice any theory concerning past human behaviour patterns.

The problem of interpretation is further compounded by two factors: modern county borders and modern environmental conditions (including modern coast lines / river courses and tree / scrub / arable cover). County borders have, for some researches, acted as fixed and impenetrable boundaries, dividing former landscapes up into a series of separate disconnected entities, while modern coastlines / river courses and ground conditions can create a series of apparently

convincing spatial relationships, whilst at the same time obscuring the prehistoric reality.

The authors present area of research has been established in an attempt to bring together and study, for the first time, as complete a database as possible for the South Eastern Chalkland for the period 4000 to 1400 BC, integrating unpublished data with a new series of 'type-site' reinterpretations, topographic surveys and a programme of selective, problem-orientated fieldwork. Once the basic data set has been accumulated, it is hoped to produce a model of spatial variability and cultural evolution as developed through the themes of landscape use.

As the research work has only just commenced, this article may appear to throw out more questions than answers. Nevertheless it is hoped here to outline a series of broad, if provisional, frameworks concerning Neolithic activity on the South Downs, in an attempt to provide the first tentative steps towards an alternative model to the single 'orthodox' view that one has been consistently confronted with. As these are, in effect, provisional statements, no attempt is made to claim that the thoughts presented here are in any way 'definitive' and that "no other interpretations may be entertained". In fact the more challenges and alternative viewpoints to this work, the better, for without debate, how is archaeology to survive?

EARLY NEOLITHIC

The most recent synthesis of prehistoric activity in South Eastern England (Drewett et al 1988, 1-178) lists six enclosures (Barkhale; Bury Hill; Combe Hill; Offham; the Trundle; Whitehawk), ten areas of flint mining (Compton; Bow Hill; Stoke Down; Lavant Down; Long Down; Harrow Hill; Blackpatch; Cissbury; Slonk Hill; Windover Hill), five long barrows (Bevis's Thumb; Glynde; Long Burgh; Hunters Burgh; Windover Hill), ten oval barrows (North Marden; Nore Down; Stoughton I; Stoughton II; Rottingdean; Cliffe Hill; Firle Beacon; Alfriston; Money Burgh; Littleington) and seven open agricultural settlements (New Barn Down; Bishopstone; Houndean; Hobbs Hawth; Piddinghoe; South Hill; Belle Tout) of Early Neolithic date from the chalkland block of the South Downs.

At least two attempts have been made to define social groups of the earlier Neolithic by fitting all recorded sites into a tightly structured model of fixed 'tribal' territories (Drewett 1975, 137-42; 1977, 226-28; 1978, 23, 28-9; 1988, 60-2). The first model (Drewett 1977, 226-8; 1978, 28) suggested the presence of at least thirteen contemporary, if distinct (ie non-overlapping), territorial zones across

the South Downs with the Trundle, Barkhale, Whitehawk, Offham and Combe Hill set at the centre of five such zones. A modification to this system (Drewett et al 1988, 60–2), following the identification of an Early Neolithic enclosure upon Bury Hill to the east of the Trundle (Bedwin 1981), suggested the existence of two larger territorial areas, based upon the premise that two types of Early Neolithic enclosure could be defined upon the South Downs: 1) centrally placed, fortified settlement enclosures (the Trundle and Whitehawk) offering redistribution and protection to outlying settlements; 2) secondary, unfortified ceremonial / ritual enclosures (Bury Hill, Barkhale, Combe Hill and Offham) with little evidence of internal settlement activity.

These, essentially idealised frameworks have been criticised for avoiding issues of chronology and phasing and for simplifying the apparently uneven distribution of sites, thus creating a potentially fictionalised picture of domestic / ritual organisation (Gardiner 1990, 121–2; Kinnes 1992, 77–8, 225). Kinnes has further indicated that the uneven distribution of flint mines, long barrows and enclosures on the South Downs during the Early Neolithic, may, if combined with a refined internal chronology, offer an insight into a more articulated system of organisation than that already proposed (Kinnes 1992, 77–8, 225).

A few points should be noted here:

- i) With regard to ‘fixed territories’, it is possible that the large enclosures of the Early Neolithic were not originally conceived as ‘central’ places, at the heart of a defined social area, by the people who constructed them. This alternative view may be supported by the observation that most enclosure sites across the country appear to lie at the edges of settled areas, as defined largely through surface artifact scatters (cf Bradley 1978, 103; Gardiner 1984, 21; Evans et al 1988(a); Holgate 1988; Thomas 1991, 32–6), within the peripheral landscapes of the dead.
- ii) Though Drewett has continually indicated that all recorded structural elements of the Earlier Neolithic on the South Downs were contemporary (eg Drewett et al 1988, fig 2.9), the archaeological database, as has already been noted (Gardiner 1990, 122) represents a sequence of chronologically successive elements and not the remnants of a single system preserved in its final articulated state. Certainly the radiocarbon chronology, as it stands (Drewett 1978, 29; Drewett et al 1988, 35), would appear to indicate a more complex series of events than has otherwise been forwarded. Any suggestion that the basic structural elements (enclosures, flint mines, settlements and barrows) remained in

constant use, with no alteration or redefinition (and with the primary function / meaning unchanged) for a period of at least 900 years (c.4300-3400 BC: Drewett 1978, 29; Drewett et al 1988, 35), seems, on the face of it, highly improbable.

iii) The dangers of ignoring sequence and chronology when examining and comparing constructs of the Neolithic have already been outlined (eg Bradley 1984; Evans 1988(a); Thomas 1991) and it is becoming increasingly clear that recorded plans of individual Neolithic enclosures do not represent the remains of single-phase, coherent entities (cf Evans 1988(a)). The results of recent fieldwork at Whitehawk, for example, appear to indicate that the defined outer ditch circuits, as excavated, are chronologically distinct from the recorded inner circuits (Russell and Rudling 1996), suggesting the presence of at least three major phases of earthwork construction. Sequential circuit development may also be inferred at Offham Hill and the Trundle (Russell and Rudling 1996, 58). The impressive size and perceived complexity of Neolithic enclosures may, therefore, have more to do with longevity of use, with successive acts of redefinition, expansion and development, rather than representing a single, deliberate act of preplanned construction. If this is the case, the question we must be asking of the archaeological data is not 'why were some enclosures of the Neolithic constructed on such a monumental scale?', but 'why did some Early Neolithic enclosures (eg Whitehawk, the Trundle and Offham) develop over time to such an immense degree, whilst other sites of this period apparently possessed only limited definition.

iv) The proposed distinction drawn in Sussex between fortified settlement enclosures and ceremonial / ritual enclosures (Drewett et al 1988, 42-4), is not supported by the archaeological evidence. Whitehawk and the Trundle were defined as fortified settlement enclosures because: both produced evidence of 'craft activities', mixed farming and seasonal food collection (evidence of which was also recovered from the remaining four enclosure sites); both covered expansive areas of hill-side (a question perhaps, as noted above, of development through time than deliberate, monumental construction); both sites were situated within cleared areas (though whether 'cleared areas' necessarily implies 'ploughed fields', as Drewett infers, is debateable); both possessed wide ranging 'multi-directional views' (assuming that 'views from' were more important than 'views to' the sites in question and in any case the views obtainable from the remaining enclosures are hardly what one could describe as significantly restricted or unimpressive); both sites produced clear evidence of 'fortification5

in terms of timber palisades and gate structures (though the Trundle possessed NO such evidence, the 'gateway' from Whitehawk is unconvincing and the Whitehawk 'palisade' appears to represent a non-primary phase construct); both sites became the focus of later settlements (the Beaker material from Whitehawk may or may not be domestic in nature, while the later activity upon the hilltop of the Trundle consisted of the construction of a 'hill-fort' in the 1st millennium BC).

Barkhale, Bury Hill, Offham and Combe Hill were identified as unfortified ceremonial / ritual enclosures because: there was little evidence of contemporary permanent settlement at these sites (no such evidence was conclusively recorded from the Trundle or Whitehawk either); all were constructed in or close to woodland (so too, it would appear, was the primary phase of Whitehawk); their locations suggested that defence may not have been a major consideration (our concept of what is and is not defensible may be at odds with the Neolithic concept, especially if war was, at this time, small scale or 'ritualised'); agricultural tools were absent (as they were from the Trundle, though Combe Hill produced two fragments of grinding stone); the range of animal bones matched those from Whitehawk and the Trundle, but also included such rarities as Beaver (this consisted of a single bone fragment from Offham, which, as it may represent the remains of a chance kill, is hardly as significant, from a supposed 'ritual' perspective as the fully articulated deer carcass retrieved from a Neolithic pit at Whitehawk: Curwen 1934, 102); no evidence of food storage was found (none was found at the Trundle and the evidence from Whitehawk is far from clear); evidence of human burial was recovered (as it was from Whitehawk and the Trundle); the four sites were surrounded by later barrow groups (as was Whitehawk: Horsfield 1824, 43; ESCC SMR TQ 30 SW 11).

v) Although only six enclosure sites were listed for the Neolithic of Sussex within the most recent survey (Drewett et al 1988, 34–44), there is evidence from the South Downs to suggest the presence of at least another three. At Court Hill, West Sussex, a small, continuously ditched enclosure, similar in size and constructional form to Bury Hill, was sampled excavated in 1979 and found to be of Early Neolithic date (Bedwin 1984: see below). A similarly sized enclosure (Court Hill II), of which only one side remained in 1982, may originally have existed to the immediate North West (Bedwin 1984a, 18). Excavations at the Halnaker Hill enclosure were less conclusive (Bedwin 1992) with constructional typology, artifactual remains and environmental data indicating a date in

the Early Neolithic while a radiocarbon date from secondary silt accumulation suggested a date in the later Bronze Age (Bedwin 1992, 10–11).

Additional evidence from Sussex, most of which remains unpublished, may indicate the existence of an additional five earthwork enclosures of this period (Belle Tout A, Cockroost Hill, Court Hill I and II, Downsview, Halnaker Hill, Withdean and Wolstonbury B). If any of the above sites prove to be Early Neolithic in date (and it is to these areas that the authors current research is now centred), then their presence could significantly alter our perception of prehistoric activity (settlement, economy, environment, ritual/ territorial organisation and chronological development) upon the South Downs.

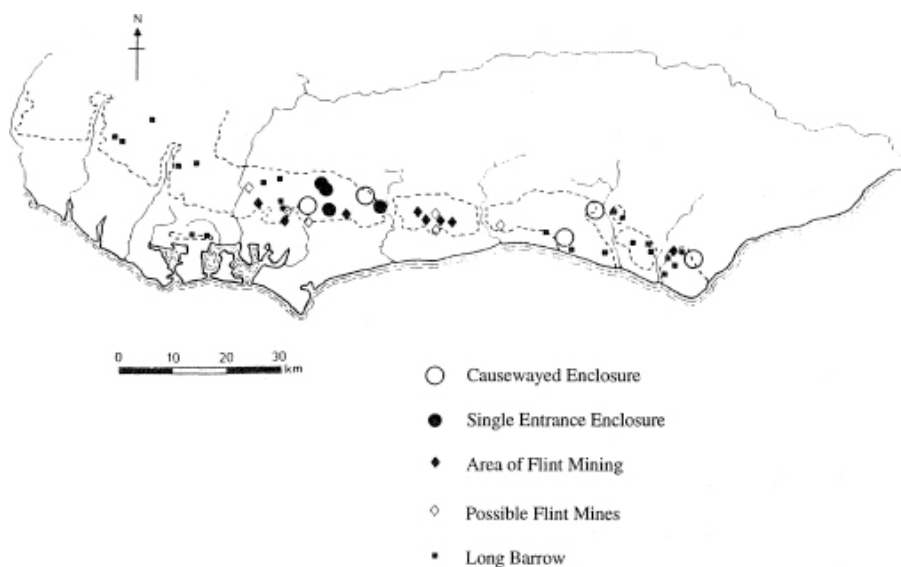


Figure 7.1: Provisional plot of Earlier Neolithic 'Monuments' on the South Downs

Conclusions?

There are two distinct, though largely unremarked, patterns apparent in the current plot-out of Early Neolithic monuments on the South Downs. The first, and perhaps most obvious, pattern detectable is the grouping of the enclosure sites and earthen long barrows to the east and western peripheries of the Worthing Downs (rivers Arun to Adur), an area of chalkland which contains the major mining sites of Harrow Hill, Blackpatch, Church Hill and Cissbury (and which also contains some evidence for Early Neolithic burial under round mounds: Pull and Sainsbury 1928a; 1928b; 1928c; Pull 1932, 63-87). A second,

finer distinction (and one which may disappear once further hilltop earthworks have been adequately examined), is the discrete clustering of continuously ditched, single entranced enclosures (Bury Hill, Court Hill I and II and Halnaker Hill) at the interface between the Chichester and Worthing Downs (Figure 7.1).

The significance of these two observations remains unclear, especially if chronological distinctions prove, at some later date, to invalidate the pattern. It may be however that the central mining block of the Worthing Downs was accorded more significance in the Neolithic period (with distinct areas of enclosures and earthen long barrows positioned to the immediate East and West) than was previously imagined. If anyone still wishes to construct broad, single phase ‘territorial’ zones across the southern chalkland, then they should perhaps consider this fourfold division of the chalkland into the East Hampshire/ Chichester/Worthing and Brighton/Eastbourne Downs in more detail.

LATER NEOLITHIC / EARLY BRONZE AGE

The demise of the large enclosures and flint mines of the Early Neolithic, the latest radiocarbon dates for both being at present 3500 – 3410 BC (BM 184: Cissbury; 1-11846; I-11847: Phase 2 at Whitehawk; Har 3596: Bury Hill), when combined with the apparent absence from the south eastern counties of Later Neolithic communal / ceremonial monuments has, until fairly recently, been taken to imply a change in, or collapse of, the basic structure of downland society at some point in the later 3rd millennium BC (Drewett 1977, 228; 1978; 23, 29).

An attempt to restate this model of social collapse has already been made (Drewett et al 1988, 86), based, primarily, on the reinterpretation of an earthwork enclosure to the north of Brighton as a henge (Bedwin 1984b, 47; Gardiner 1984, 32). The site, Wolstonbury C, consists of a 2.2 hectare enclosure with an, apparently unrevetted, external bank. Small scale excavation work in 1929 produced a sherd of Food Vessel and a number of flint flakes from the primary silt of the ditch (Curwen 1930, 242–3). If Wolstonbury is to be considered as a “henge” then it is unusual in two respects. Firstly, in its siting upon the prominent north scarp of the Downs it differs from most, though not all, of the recorded henge sites of Southern England (Guido and Smith 1982; Harding and Lee 1987, 33–4). Secondly its size makes it considerably larger than most recorded “classic” henge sites, though it is by no means as extensive as the “henge enclosures” of Durrington Walls, Mount Pleasant and Marden (Wainwright 1989; Harding and

Lee 1987, 34). From the artifactual data, which is, it must be admitted, fairly limited (Curwen 1930, 242-3), there would as yet appear little reason, as yet, to doubt the “henge” interpretation.

More convincing evidence of Later Neolithic / Early Bronze Age ceremonial activity within the Brighton Area was produced in 1989 with the discovery and excavation of a Class II henge monument at Mile Oak, Portslade (Russell in press), and the identification of a Late Neolithic palisade monument of ‘Dorchester-type’ (Harding and Lee 1987, 24) from beneath a Later Bronze Age cremation cemetery and cairn at Itford Hill, near Lewes (Holden 1972; Russell 1996). The recent discovery of such sites would appear to suggest that the current model for Later Neolithic activity upon the South Downs again requires some reconsideration (cf Russell 1996, 28–56). The same could be said for the known areas of flint mining within the central (Worthing) block of the chalk downs for there is evidence, from Blackpatch, Church Hill and Cissbury, that activity at these sites did not completely cease before the end of the 3rd millennium.

Although extensively studied during the late 19th and early 20th centuries (eg Pitt Rivers 1869; 1876; Harrison 1877; 1878; Willet 1880; Goodman 1924; Wade 1924; Curwen and Curwen 1926; Pull 1932), the mines of the South Downland block remain poorly understood. This is due not only to the ‘ambiguous’ nature of most early excavation reports, with comparatively few well stratified finds or specialist reports, but also to the wealth of data concerning mine sites left unpublished in museum stores. Data retrieved from the Pull collection at Worthing Museum, for example, notes the presence of Late Neolithic and Beaker activity from the sites of Blackpatch and Church Hill. Most of this material constitutes burial within secondary deposits of mine shaft backfill (eg Pull 1933, 813), though there is some evidence of flint quarrying and on-site axe manufacture (Pull and Salisbury 1928c).

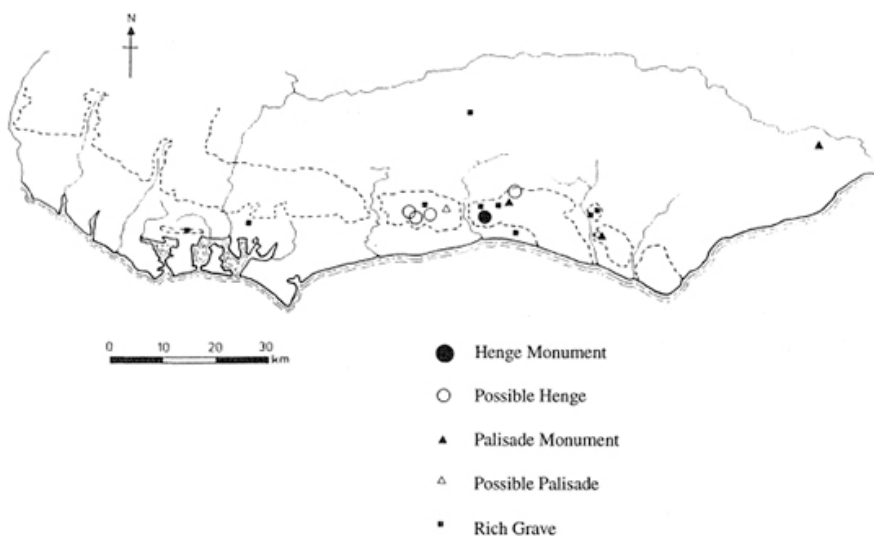


Figure 7.2: Provisional plot of Later Neolithic 'Monuments' on the South Downs

Associated with this renewed / continued phase of flint working within the area of the earlier mines, is the construction of apparently new monument types. At Blackpatch, an externally banked, circular ditch (Barrow 9), to the immediate north east of the main activity area, was found, on excavation, to contain disarticulated human bone, Beaker pottery and flint debitage (Pull and Sainsbury 1930; Pull 1932, 82). At Church Hill a roughly oval shaped ditch with an internal setting of posts (Hut site 1), situated some 25m to the south east of mine shaft 4, appeared to contain (or was partially overlain by) a small 'saucer-shaped', circular depression (Pull 1953, 17; Pull and Voice Unpublished). Fragments of collared urn and flint debitage were recovered from the primary silt of the main ditch. It is unclear at this stage whether Hut site 1 may be viewed as a domestic structure (as Pull suggested) or a ritual construct, though as with 'Barrow 9' at Blackpatch, the presence of both mining debris and Late Neolithic / Early Bronze Age deposits (cf Pull and Sainsbury 1929a; 1929b), may indicate the continued importance of the Worthing mines beyond the 3rd millennium BC.

Problems concerning the interpretation of the South Downs flint mines are further compounded by the probability that additional mining sites remain to be identified (D. Field pers.comm.). Such sites are, for example, indicated at Tolmere, where a small group of pits were trial trenched in 1926 and 1949 (Curwen 1954, 121; Pull unpublished), High Salvington, where a linear spread of 'saucer-like' depressions associated with axe roughouts, Late Neolithic flintwork and Beaker pottery, was noted in the early 1930's (Pull 1935), Roger's

Farm, Findon, where a combined geophysical and surface collection survey has recently detected possible quarry pits (Laughlin 1994), and Nore Down, where a feature presumed to represent the remains of an oval barrow has been shown, through excavation, to represent part of a linear strip of mine pits (Aldsworth 1983).

Conclusions?

The provisional plot-out of Late Neolithic / Early Bronze Age communal monuments on the southern chalkland (figure 3: Cock Hill, Blackpatch barrow 9, Church Hill site 1, Mile Oak, Wolstonbury C; Russell 1995, 37–9) appears to indicate a small but discrete cluster of sites at the interface of the Worthing and Brighton / Eastbourne Downs. As with the sites of the Earlier Neolithic, the significance of this observation is unclear, though it may be that the central downland / coastal zone, the mining areas of Worthing (where a limited form of mining activity may have continued into the Beaker period) and the ‘monument’ area around Brighton, was home to one of the more dominant social groups operating in the South East during this period. The observed clustering of sites appears to be mirrored in the artifactual evidence, especially that of ‘exotic’ grave goods (Drewett et al 1988, 80–5), metalwork (Gerloff 1974; Ellison 1978) flintwork and stone tools (Gardiner 1984; 1990; Woodcock and Woolley 1986).

Acknowledgements

I should like to thank Sally White for permission to reproduce information from the Pull Collection currently housed in Worthing Museum. Thanks also go to Dave Field, Dave McOmish, Al Oswald and Pete Topping for useful discussions during the formative stages of this work.

Landscape, the Neolithic, and Kent

Martyn Barber

In recent years, the application and development of increasingly sophisticated concepts of landscape has begun to transform our understanding of the often ambiguous and ephemeral traces of past human activity which together constitute the so-called archaeological record (eg Bender ed. 1993, Bradley 1993, Tilley 1994). Straightforward ‘what it looked like’ reconstructions of the surroundings of individual sites, largely founded on interpretative assessments of excavated artefactual and environmental data, in combination with a consideration of soils, geology and topography, are gradually being supplemented by studies which emphasise the interactions of people – as individuals and as groups – with their physical surroundings.

At the core of landscape analysis lies the same scattered sites and artifacts which together comprise our evidence for the past, but as is widely acknowledged, that evidence cannot be regarded as a random and representative record of that past. The conceptual frameworks which both derive from and inform our own observations and interpretations (Thomas 1993(a)) are founded upon archaeological data which displays considerable historical and geographical diversity in terms of both quality and quantity. Analyses of landscapes within particular spatial and chronological limits are inevitably influenced, and to varying degrees constrained, by the frameworks of both time and interpretation created and developed for the past by archaeologists. Given an unequal distribution of good quality information, there is a clear danger that the social practices and traditions envisaged for some areas will become the assumed social practices and traditions for all. Arguably, the treatment of the Neolithic as a fairly well-defined and coherent phenomenon across regions, as criticised by Thomas (1993(b)), has arisen in part because of the aforementioned variability in the quality and quantity of the

archaeological raw material. Poorly investigated areas are effectively having their pasts written from interpretations of artifacts, sites and landscapes discovered and analyzed elsewhere, discoveries which have over time passed through a complex filter of competing and developing ideas about their meaning and significance. Certain areas favoured by good site preservation and a long and well-documented history of antiquarian and archaeological investigation inevitably attract more fieldwork and research because the foundations for such work are already there. The pasts of areas less well blessed with data in bulk are equally inevitably fleshed out with reference to those better studied regions, a process which favours generalization over diversity, regional coherence over local variability. In addition, the apparent coherence of generalised statements about the past provides guidance as to what to look for and what to expect in those lesser-known places.

ARCHAEOLOGY AND KENT

Such has, by and large, been the case in Kent. Synthetic overviews of the prehistory of this particular corner of England from Jessup (1930) to Drewett *et al* (1988) demonstrate a tendency to paint a picture of the distant past from the evidence of more thoroughly examined but geographically distant parts of southern England, often Wessex but more recently, and particularly in the case of Drewett *et al* (1988), from Sussex. The more limited information from Kent, which consists in the main of poorly provenanced artifacts and a mixed bag of problematic (or ‘enigmatic’) sites and monuments, is largely reduced to an inventory of appropriate categories of evidence which acts as proof that something broadly conforming to the concept of ‘the Neolithic’ actually happened there.

The state of archaeological knowledge in Kent up until the end of the 1970s was fairly summed up in a collection of papers published at the beginning of the 1980s (Leach ed, 1982). As far as the individual contributors were concerned, the picture was none too rosy. Prehistoric archaeology had been “virtually ignored”, with the Neolithic “neglected” (Clarke 1982, 25). The Bronze Age, meanwhile, had “perhaps suffered worst”, attracting “remarkably little interest” (T Champion 1982, 31), while Iron Age studies were “in something of a doldrum” (Cunliffe 1982, 40). Even those who derived their pleasure from the study of later periods found the situation far from ideal. Of course, Kent is by no means the only part of Britain to possess a far from ideal history of archaeological enquiry. In many ways, the situation mirrors that recently described by Young (1994) for the

Durham/Northumberland area, where the history of fieldwork and landscape study was said to be one of “individual endeavour and institutional disinterest” (Young 1994, 6). Young’s comments on the need for critical awareness of the archaeological resource are also worth bearing in mind when considering some recent discussions of Kentish prehistory.

While it may be fair to say that the complaints of almost two decades ago did not result in a sudden influx of eager researchers, matters have improved somewhat in the intervening years. Notable developments include the establishment of a county sites and monuments record (the last in England to be set up); the various research programmes taking place under the auspices of the Romney Marsh Research Trust (Eddison (ed) 1995, Eddison & Green (eds) 1988); the establishment of reasonably comprehensive cropmark and soilmark coverage for those areas most susceptible to aerial photographic survey (RCHME 1989); and the major inroads made into untangling the complexities of later prehistoric ceramics (eg Macpherson Grant 1992). However, advances in our understanding of the local Neolithic (and earlier periods) have been limited. The lack of a coherent research framework within which to assess and inform the results of the increase in development-led ‘preservation by record’ means that many of the problems identified in the late 1970s remain. The Neolithic in Kent continues to be represented by a gradually increasing quantity of finds and features whose relationships to each other are uncertain. The limited and accidental nature of so many discoveries of this date makes it difficult to assess the degree to which the Neolithic of the region conforms to the reconstructions and interpretations imported from further afield. The history of archaeological endeavour also serves to warn against the use of modern administrative or political boundaries to define study areas for investigating the past (S Champion 1994), as the presence of those boundaries has to a considerable extent influenced the practice of archaeology within them (county societies, county units, county SMRs, and so on).

A NEOLITHIC LANDSCAPE

Inevitably, the quality and quantity of information on the Neolithic makes it extremely difficult to discuss particular landscapes. The nearest that Kent has to a Neolithic landscape in the conventional sense is the area of land bisected by the Medway valley which contains the well-known group of megalithic monuments (see eg Ashbee 1993, Evans 1950, Holgate 1981, Philp 1981, Philp & Dutton

1985, among many others), although of course the landscape in which they are now situated is inescapably modern. Until recently, discussions of these tombs have considered them solely within the academic context of wider concerns with megalithic monuments, rather than examining the local context in terms of physical surroundings and the local archaeology, prompting Clarke (1982, 28) to criticise “the mystical awe in which their architectural complexities are shrouded [which] has created a blinkered approach to their study”. Medieval and later episodes of destruction (see Ashbee 1993), which have resulted in occasional difficulties in distinguishing between genuine monuments and naturally-occurring groups of sarsens, have not hindered attempts to draw them into the mainstream of megalithic studies, focusing primarily on (stereo-) typology and pedigree. However, comparing reconstructed plans with monuments in Scandinavia or among the Cotswold-Severn group does little to explain why these constructions are situated precisely where they are and not somewhere else, or why they exist at all. In more recent studies, a consensus appears to have emerged which emphasises their affinities with earthen long barrows, implying that they were built with stone because the stone was there – ie given the choice, Neolithic people preferred sarsen to soil. However, as Ashbee’s (1993) gazetteer demonstrates, the known distribution of sarsen in Kent is far more widespread than the known distribution of sarsen-built prehistoric monuments. Moreover, there are other parts of southern England which, though blessed with a reasonable supply of suitable stone, possess no reliably recorded megalithic monuments at all (see eg Toms 1927).

Holgate’s (1981) discussion of the group represented the first serious attempt to examine the idiosyncrasies of the Medway megaliths within a local context, although the context he provided was closer to the sort of generalised picture of the Neolithic criticized above rather than being drawn from a detailed assessment of local and contemporary sites and finds. But, as he noted, it is the ways in which these monuments depart from patterns observed elsewhere that are among their most interesting attributes. In particular, their spacing is highly problematic for approaches which emphasise notions of tombs as territorial or communal markers. Rather than being widely scattered across the countryside, two clusters can be discerned – one east of the Medway (a small group spread over c. 1 square mile), and the other to the west near Addington. In the latter case, it is worth emphasising the point that the Chestnuts Tomb and the Addington Long Barrow, which diverge considerably in (reconstructed)

morphology and alignment, are less than 100m apart.

The Chestnuts Tomb is the only member of the Medway group(s) to have been recently and comprehensively excavated to modern standards (Alexander 1961), and the results are particularly instructive in terms of site location and concepts of landscapes inscribed with social meaning. Situated on the Greensand, on a south-west facing slope overlooking a tributary of the Medway, the area around the monument has yielded a substantial and widespread scatter of typologically Mesolithic worked flint. In particular, Alexander (1961, 5) noted a density of around 40 flints per square yard – the highest recorded during the excavations – immediately adjacent to the surviving sarsens. A little over 10% of the Mesolithic assemblage recovered during the excavations was found lying, apparently *in situ*, on the former ground surface beneath the monument. Interestingly, elsewhere in the report Alexander (1961, 9) describes the discovery of 100 sherds of Windmill Hill ware “on the old ground surface under the barrow”. Although ambiguous, alongside a reminder that the broader picture should not be overlooked, such points serve to emphasise that the most fruitful lines of enquiry are likely to start in the immediate locality than Scandinavia, Gloucestershire, or elsewhere.

KENT AND CAUSEWAYED ENCLOSURES

Given the lack of data with which to consider a landscape of Neolithic date within Kent, it seems more appropriate here to consider some aspects of the Neolithic of southern England of which it is assumed to have been a part. Among the most prominent Neolithic features of some modern landscapes is the class of earthwork monument known as the causewayed enclosure. The nature and purpose of such sites has attracted considerable attention in recent years (for example Edmonds 1993, Evans 1988(b), Mercer 1990, and papers in Burgess *et al* 1988). As the number of definite or probable examples increases and their known geographical distribution expands, they have come to occupy an increasingly important place within discussions about landscape and society in southern Britain from the earlier Neolithic onwards. As monumental transformations of particular locales, they are seen (in their primary phases at least) to represent fixed places within a landscape occupied primarily by small and still quite mobile groups, and thus act as a focus for gatherings which enabled dispersed communities to come together at particular times or for particular occasions in order to exchange, celebrate, feast, perform various acts associated with the dead and the living, and so on. Furthermore, they

are increasingly regarded as having been situated on the periphery of contemporary landscapes, ie away from the areas which were the focus of the everyday routines of the people responsible for their construction and utilisation. Additionally, there is growing support for the idea that such enclosures were built at places which were already important features of the humanly perceived landscape, as long-term patterns of cyclical and routine behaviour produced landscapes which had become socially inscribed with meaning long before the construction of the first Neolithic monuments (Bradley 1993, Tilley 1994).

However, it seems at times as though such monuments act as a focus for archaeologists first, before they are permitted to do so for the Neolithic populations who created, used, maintained and abandoned them. To modern techniques of archaeological survey, they present (comparatively) highly visible traces of human activity within the earlier Neolithic, and where they exist, they can be regarded as playing an important role in shaping and transforming the physical landscape, and people's perceptions of that landscape as they moved around and within it. The important point is, however, that although causewayed enclosures are an increasingly numerous and widespread presence in the British Neolithic, they are by no means regularly distributed around the landscape. This point is particularly pertinent when considering the Neolithic period in Kent, because to date no convincing example of a causewayed enclosure has yet been recognised from what is a fairly sizeable chunk of territory. Of course, as is commonly stated, absence of evidence does not automatically constitute evidence of absence, although this does not mean that alternative scenarios should not be considered before opting for conformity.

So how real is this apparent absence? The possibility that one or more causewayed enclosures will turn up eventually is implicit in some recent discussions. Drewett *et al* (1988, 44) considered their absence from the North Downs "surprising, given the contemporary long barrows and megaliths in the Kentish valleys", and cited the examples of Orsett and Staines (in terms of their locations) in suggesting that "enclosures may have existed in Kent and Surrey north of the North Downs". This may well be so, but it is not clear why the situation in one area should be replicated in another. The under-exploration, archaeologically speaking, of Kent may of course be a significant factor in accounting for the lack of such monuments. Having highlighted this particular problem already, it would be foolish to rule out completely the likelihood of future discoveries. The

Weald for example is an area of considerable potential now that it is clear that there may have been considerable activity from the Mesolithic on into the earlier Bronze Age (Needham 1987, 126–7; Gardiner 1990), in contrast with earlier opinion which characterised the area as “...wooded lands with their heavy moisture-retaining clays [which were] little in favour with the agriculturalist who preferred a warm light soil” (Jessup 1930, 59), another preconception in decline.

Claims have been made for some sites, of course. One such enclosure is suggested to have existed at Chalk near Gravesend. It has received several mentions in the literature (Drewett *et al* 1988, 34; Holgate 1981, 230; Holgate 1988, 341; Mercer 1990, 11; Smith 1971, 90; etc), but all sources ultimately lead back to a brief statement in Jessup’s ‘South East England (1970, 73; “...a now destroyed site at Chalk near Gravesend on the south bank of the Thames”), and no supporting evidence with which to evaluate the claim has ever been forthcoming. The earthworks at West Wickham Common have also surfaced occasionally as a potential candidate (Hogg & O’ Neil 1937, Hogg *et al* 1941, Hogg 1981) primarily on morphological grounds following earthwork survey, although the suggestion has never met with much enthusiasm. Recent RCHME field investigation strongly suggests that a Neolithic date for any of the earthworks there is unlikely (A Oswald pers comm). More promising, perhaps, is whatever lies beneath the medieval earthworks atop Castle Hill, Folkestone. Limited sample trenching by the Canterbury Archaeological Trust (Bennett 1987, Rady 1990), in connection with work undertaken in advance of construction of the Channel Tunnel terminal, has confirmed the presence of something of Neolithic date, possibly a ditch, containing sherds of Peterborough ware in what are presumably the upper layers of its fill. The location of this site, both as a prominent landscape feature and amid a scatter of known Neolithic and later sites and findspots serves to underline its potential, whatever it turns out to have been.

Destruction of the surviving traces of any enclosure is of course a possibility that requires consideration. The alleged site at Chalk is said to have been destroyed, and if there was an enclosure there, the most likely agents of destruction would have been urban expansion, quarrying, or agricultural activity. Urban areas and various quarries in Kent have produced their fair share of artifacts (and occasionally features) over the years. Objects of Neolithic date are not especially numerous among them, though documented discoveries tend to comprise only those things likely to be of interest to the non-archaeologist. The other principal cause of destruction is ploughing.

The quantity of cropmark sites known from the county, particularly on the chalk, is not only evidence for the sheer density of prehistoric activity in areas that are now primarily arable land. It also highlights the amount of destruction caused by the plough, a process which appears to have begun in later prehistory. It may well be the case that all traces of earlier Neolithic sites have been lost, although the identification of around a dozen cropmarks as possible long barrows (RCHME 1989, 3.2.9) is worth bearing in mind here. In addition, the coastline has been subject to processes of erosion and deposition as well as a general rise in sea-levels, leading to the loss or concealment of sites. But given that none of these are unique to the area – individually or in combination they affect other parts of the country to varying degrees, as do other similarly destructive processes, they cannot by themselves serve as a suitable explanation for an apparent gap in the archaeological record.

If we put the limitations of the local archaeological record to one side for the moment, what other factors may account for our failure to identify something which conforms to our expectations of what one of these sites looks like? Expectations are, of course, one of the problems. Although most enclosures of earlier Neolithic origin are certainly causewayed, there are some enclosures of similar date which clearly possess uninterrupted earthwork circuits (eg Court Hill (Bedwin 1984) and Bury Hill (Bedwin 1981), both West Sussex), and whose Neolithic date could only be demonstrated by excavation. Perhaps a closer look at some of the cropmark non-causewayed enclosures is required. Of course, just as causewayed enclosures themselves have revealed considerable variety in terms of activity and sequence, these other enclosures need not have been intended or utilised in quite the same ways. Furthermore, the range of activities believed to have occurred at Neolithic enclosures, whether causewayed or not, need not have required the formal enclosure of their preferred location by a circuit or circuits of ditch segments and upcast banks, whether as part of a single episode or over a longer time period.

As the above implies, causewayed enclosures are not purely characterized by their morphology, although the presence of a particular form or style of earthwork clearly plays a significant role in the identification of such sites, with the inherent risk that extant morphology takes on a greater importance than is necessary in monument classification and interpretation. Of course, causewayed enclosures are by no means alone in this, the traditional typological scheme for the prehistoric round barrows of southern England providing a much better example. The result is a category of

monuments which contains all those which conform most clearly to the criteria used to define the stereotype. Those which do not are both more difficult to identify, other than by accident or excavation, and more difficult still to interpret, as they do not meet our preconceptions. In addition, acceptance of a particular category of site as performing certain functions within society can also distract attention from the question of whether or not those functions always occurred at those sites. Interpretation of the nature of activities undertaken at causewayed enclosures stems primarily from analysis of the excavated deposits, and particularly the artifacts deposited at them. But it is becoming increasingly clear that the form of deposition, the nature of the material deposited, and hence the possible reasons for deposition, vary considerably between sites, and are not exclusive to these enclosures. The evidence from excavated pits, whether occurring singly or in groups, suggests that similar episodes may be responsible for their contents. In the past there has been a tendency for such pits to be interpreted as having performed a storage function within open settlements before being infilled with rubbish. The evidence from more recently excavated sites highlights the fact that the situation is rather more complex.

KENT: THE PITS

Such pits are by no means unknown from Kent, but again the evidence is generally poor. The most productive (and ‘enigmatic’) are those examined at Grovehurst near Sittingbourne a little over a century ago. Payne (1880) described the discovery of a series of “holes” three to four feet deep and around ten feet in diameter, each containing considerable quantities of burnt vegetable matter along with numerous lithic implements and flakes, sandstone rubbers, potsherds and animal bones (including cattle skulls). Along with pits at Nethercourt Farm, Ramsgate, and at Wingham, their contents have often been held as direct evidence for the existence of a ‘Neolithic’ way of life in the area, in terms of the local subsistence economy (although the most recent mention of the Grovehurst pits in the archaeological literature is as possible Neolithic buildings – Darvill 1986, 105). For example, “The most extensive group of storage pits indicating the presence of open agricultural settlement was recovered at Gravehurst [sic]...Although inadequately recorded, the presence of quern stones indicated cereal production, while horns, skulls and other bones of *Bos* suggest animal husbandry” (Drewett *et al* 1988, 45). Similarly Holgate (1981, 229) argued that animal bones from Grovehurst and Wingham coupled with quernstones from Grovehurst,

Wingham, Dartford and Deal suggest that “earlier Neolithic farmers adopted a mixed farming strategy”, while the presence of flint arrowheads at most of these sites plus an antler comb at Wingham and marine shells at Nethercourt Farm and Wingham “indicate that the subsistence economy was still supported by hunting and gathering”. Thus the presence of these items within the various pits is explained as the casual discard of everyday items. That the deposition of items on many such pits appears to have been much more formal and purposive in nature is evident from a closer look at a few of the aforementioned sites for which more detail survives about the recovery of their contents. For example, at Mill Road, Deal (Dunning 1966, 1–5), a conical pit 4ft deep with a flat base contained five round-based vessels standing upright on the pit bottom, packed around with numerous flints. One of the pots contained what was described as a large stone ‘grain crusher’. Half way up the pit’s fill of dark earth was a layer of flint flakes, two apparently struck from polished axes. The previously-mentioned pit discovered at Nethercourt Farm, Ramsgate (Dunning 1966, 8–11) was oval in shape, 9ft long and nearly 4ft wide, with its depth below modern ground level varying between 5ft 1in and 5ft 8in. Lying on or close to the bottom was a contracted inhumation with the sherds of a round-based pot scattered over it. The pit fill over this skeleton comprised solidly-packed chalky soil with charcoal, ‘hardened earth’, an oyster shell and two struck flint flakes. Above this skeleton, and c 3ft 3in below the surface, was the remains of a second individual, the arrangement of the bones being described as “disorderly” and “dismembered”.

As stated earlier, the evidence is fragmentary and of highly variable quality, limiting the inferences and interpretations that can be placed on it, but the indications are that, as is recognised elsewhere, such pits and their contents represent far more than the casual discard of material signifying the presence of certain technological and economic indicators of some generalised Neolithic lifestyle. The limited data at our disposal thus places a further constraint on our ability to interpret what was happening in this area during the Neolithic, but at the same time allows us to consider some alternatives to sequences and developments derived from the study of better explored regions. In other words, instead of treating what survives as representing isolated fragments of a picture which has been completed somewhere else, those fragments should be used to examine the local picture, which can then be compared and contrasted with those of other regions.

In Kent, certain characteristics regarded as typically Neolithic are present in the observed archaeological record. Various Neolithic

artefact categories, primarily lithic or ceramic in nature, are well-attested. Certain site and monument types are known, such as the pits and megaliths described above. A rung or two further up the ladder of inference, particular types of activity, primarily concerned with the deposition of artifacts and of human remains are also present. However, aspects of the Neolithic, some of them quite central to recent discussions of the period, remain absent, particularly the major monument classes. Causewayed enclosures have been singled out for detailed consideration, but a shortage of flint mines, cursus monuments, and all things henge-like is also apparent. This lack of substantial monuments acting as focal points for human interaction and as physical and symbolic determinants of landscape use and perception is a problem which requires consideration. The nature and quality of the archaeological record presents difficulties, but these are not difficulties which should be overcome by seeing what other areas have got, or waiting for something to turn up. Causewayed enclosures are believed to have performed certain functions within society, and their locations are unlikely to be due to historic accident, but probably relate to the way people moved around, exploited and occupied the landscape prior to their construction. Their apparent absence from an area the size of Kent has implications for concepts of mobility and territoriality, and for the ways in which people utilized and understood their surroundings, and how they interacted with each other during the long and gradual change from the mobile hunter-gatherer lifestyles of the Mesolithic to the far more settled arable/pastoral nature of the Middle Bronze Age. As well as highlighting the variability inherent in the archaeological record at the local or regional level, the apparent absence of certain monuments also raises questions about their presence elsewhere. An increasing preference for more mobile lifestyles in the Neolithic than previously allowed breaks down the perceived distinctiveness of the period as a whole from the preceding Mesolithic, but further emphasises the need to explain why monuments were constructed at all. And why was it necessary to build them in one particular area and not another? This is not to deny the importance of particular places in the Neolithic. Certain locations were clearly important foci and their continuing importance was demonstrated by the construction and long-term use and adaptation of certain types of monument –most notably for Kent the megaliths of the Medway valley. Other places saw acts of burial and deposition, sometimes on a number of occasions. But in Kent, at present, it appears that few such locations were subjected to the kinds of monumental physical transformations attested elsewhere.

A landscape of two halves: The Neolithic of Chelmer Valley/Blackwater Estuary, Essex

N. Brown

INTRODUCTION

The central Essex river system comprising the Chelmer Valley and Blackwater Estuary, has been a major focus of archaeological investigation over the last 20 years, and this paper summarises the Neolithic evidence.

The River Chelmer drains the boulder clay plateau of central Essex (Figure 9.1 and Allen and Sturdy 1980). The river flows east from its junction with the Can at Chelmsford, along a valley cut through glacial gravels with a relatively narrow alluvium covered floodplain. The Blackwater flows south through a similar valley to its confluence with the Chelmer west of Maldon. The rivers then continue east widening into the broad expanse of the Blackwater Estuary. The estuary is fringed with salt marsh, backed by an extensive area of low lying poorly drained gravel. Acidic ground conditions throughout the river system preclude bone recovery.

There are a wide variety of cropmarks known within this river system, and it is this cropmark evidence which has led to a range of field investigations. There are particular concentrations of cropmarks immediately west of Chelmsford (Buckley and Hedges 1987a), and east of Maldon around the confluence of the rivers Chelmer and Blackwater (Buckley and Hedges 1987b fig. 31).

Extensive cropmark landscapes are known on the gravel to the north of the Blackwater estuary.

Urban expansion of Chelmsford prompted various excavations including Springfield Cursus (Hedges and Buckley 1981), the Bronze Age enclosure at Springfield Lyons (Buckley and Hedges 1987a) and other sites (Brown and Lavender 1994). Similarly, widespread gravel extraction north of the Blackwater estuary has resulted in large scale excavation (eg. Brown 1988 Wallis and Waughman forthcoming).

However, the cropmarks west of Maldon are relatively unthreatened by development and mineral extraction, and therefore, have not attracted rescue work; although some research excavation has taken place (Hedges and Buckley 1987b, Reidy 1994).

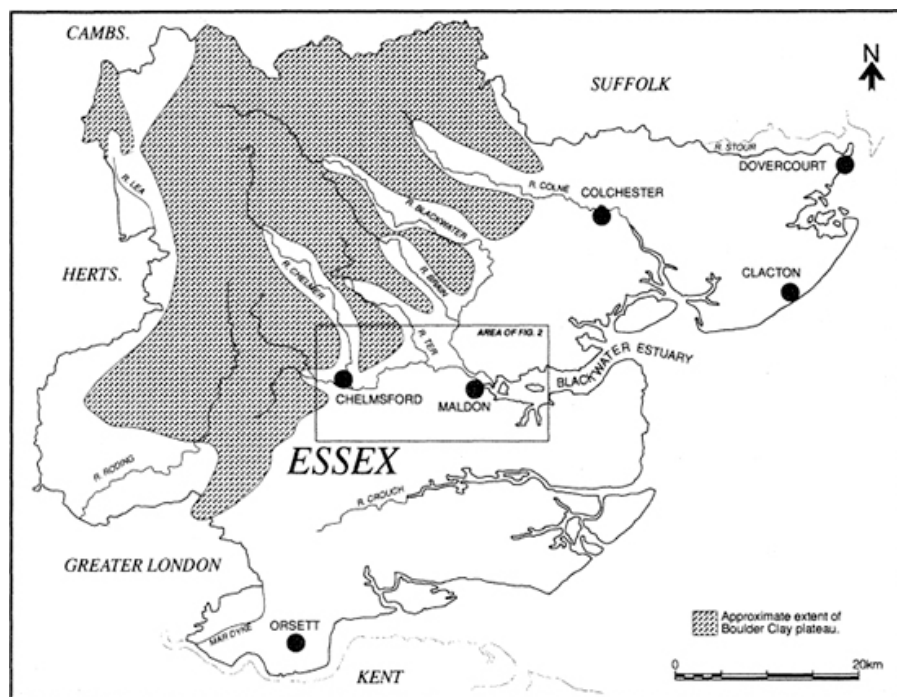


Figure 9.1: Location Map

The archaeological potential of the intertidal zone around the Essex coast has long been recognised (Warren et al 1936), but remained largely latent until the early 1980s when survey of the Crouch estuary was instigated. This was subsequently extended to cover most of the Essex coast revealing a remarkable range of archaeological evidence, including a variety of Neolithic sites in the Blackwater Estuary (Wilkinson and Murphy 1986, 1995 and forthcoming).

The archaeological evidence is thus concentrated in two areas, one around Chelmsford, the other about 15km to the east on the Blackwater gravels and adjacent intertidal zone (Figure 9.2).

THE NEOLITHIC OF CHELMSFORD

In the area of the Chelmer Valley around the confluence of the Chelmer and Can, where present day Chelmsford is located, the earliest Neolithic evidence is represented by a scatter of finds of flintwork and plain bowl sherds. These have been recorded residual in

later contexts, in buried soils within the area of Roman Chelmsford, and from pits at Little Waltham (Hedges 1980, Drury 1978). Similar evidence from pits was recorded during quarrying at Gt. Baddow in the 1930s (Brown and Lavender 1994). A few plain bowl sherds were recovered from the cover loam during excavation at the west end of the Springfield Cursus.

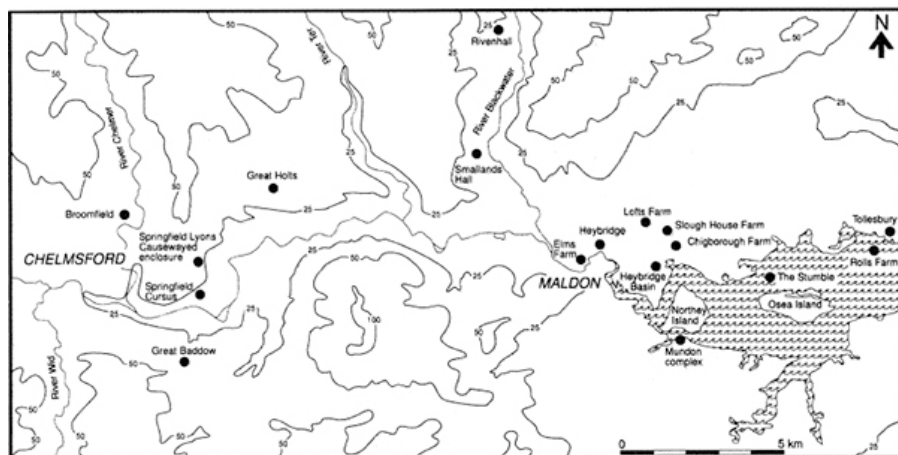


Figure 9.2: Neolithic sites in the Chelmer Valley/Blackwater Estuary mentioned in the text.

During excavation of the Late Bronze Age Circular Enclosure at Springfield Lyons, a range of Neolithic pottery was recovered from a scatter of pits (Buckley and Hedges 1987a). Much of the pottery was of Mildenhall character (Longworth 1960), but pits with Grooved Ware were also recorded. One of these contained a flake from a polished axe, recalling similar deposits from the foreshore at Clacton (Longworth et al 1971, 119). Similar Grooved Ware pits have been recovered from Broomfield 4km to the north east, and Gt Baddow 3km to the south of Springfield Lyons. Both of these sites were recorded during investigation of Late Bronze Age enclosures (Brown and Lavender 1994), and lie on high ground overlooking the Chelmer Valley. The Great Baddow Grooved Ware pit was located about 1.5km west of a hoard of flint and stone axes discovered in 1949. At Great Holts Farm 3.5 Km north of Springfield Lyons a small shallow pit with Peterborough Ware was revealed during excavation of a Roman site, a flint axe was recorded during machine stripping close by.

Outside the main east entrance of the Bronze Age enclosure at Springfield Lyons, two large pits were excavated and produced prolific Neolithic finds. With the benefit of hindsight, these pits could be discerned on air photographs, and could be seen to be at the centre of an arc of similar features, apparently forming a Causewayed

Enclosure. This cut off a small gravel 'promontory' between two small streams, tributaries of the Chelmer. Trial trenching confirmed the line and date of these features (Buckley 1991, 1992).

Of the two fully excavated central features of the Causewayed ditch circuit, one had a deep almost shaft like pit. Both contained apparently deliberately placed deposits of Mildenhall pottery, often comprising up to about half a complete vessel. The upper fills contained occasional Grooved Ware, and frequent sherds of late style Beaker. One of the pits had a pair of narrow slots cut into its upper fill, again associated with Beaker sherds.

The range of material recovered is clearly similar to that from the Orsett Causewayed Enclosure (Hedges and Buckley 1978); Mildenhall Style Pottery, with later deposits of Beaker and Grooved Ware, and an absence of Peterborough ware. The Springfield Lyons site lies approximately 1km north of a cropmark Long Mortuary enclosure (Buckley et al 1988), whilst Orsett is about 1km north east of a similar Long Mortuary enclosure, recently recognised on an old air photograph (Strachan forthcoming). However, there are marked differences between the two sites, multiple ditches at Orsett and a single arc at Springfield Lyons, palisade slot at the former but not at the latter. At the Springfield site the ditch segments are short deep pit like features, a marked contrast to the elongated ditch segments at Orsett.

Since the discovery of the Springfield Lyons Causewayed Enclosure, was an unexpected by-product of investigation of the Bronze Age enclosure, excavation had thus concentrated outside the Causewayed ditch. This has shown that, whilst the ditch defined a particular area, deposits essentially similar to those taking place in the causewayed ditches also occurred in pits outside the enclosure. A graphic reminder of the way in which some Causewayed Enclosures do not in fact enclose, or at least do so in a very permeable manner, a point discussed by Pryor (1988) in relation to Etton.

Single circuit Causewayed enclosures like the Springfield example are now widely represented in the cropmark record from East Anglia (Evans 1988(b), 141 and Appendices). However, recent work at Smallands Hall in the Blackwater Valley injects a note of caution.

Here, an aerial photograph showed an arc of features very similar to that at Springfield Lyons, in the same sort of location; a small promontory overlooking the river. Disappointingly, trial trenching revealed no evidence of Neolithic occupation, indeed little coherent archaeology was present besides some Saxon evidence including possible graves (Reidy 1994).

The Springfield Lyons Causewayed enclosure lies approximately 1.5km north of the Springfield Cursus. The Cursus was revealed by a series of air photographs, as a rectangular enclosure 670m long and 40m wide, with markedly squared terminals. The monument ran roughly east-north-east/west-south-west across a gravel terrace just above the Chelmer floodplain, the river, at its closest, presently flows about 200 – 300m from the Cursus (Hedges and Buckley 1981). The Cursus is aligned on an oval cropmark probably a Long Mortuary Enclosure, which was unfortunately destroyed before its existence was known (Buckley et al 1988). These two monuments cut off the neck of a spur roughly defined by the 20m contour line, within a broad loop of the Chelmer. Although the change in slope marked by the 20m contour is not great, it may nonetheless be significant. Despite the canalization of the Chelmer in the 18th century, and more recent drainage work, the river floods each winter to the east of Chelmsford in the vicinity of the Cursus.

This can be seen to dramatic effect from Springfield Lyons in midwinter, when the rising sun is reflected from the often frozen floodwater in the valley below; this may well have been a spectacular view when the Cursus and Mortuary enclosure were standing monuments. It seems likely that winter flooding in the Neolithic would have been even more extensive than it is today. In which case, in mid-winter, the Cursus and Mortuary enclosure might have run across the neck of an area of dry land surrounded on three sides by floodwater.

Extensive excavation took place at the Cursus between 1979 and 1984, prior to housing development. Both terminals were excavated, together with various points along the length of the monument. The interim report (Hedges and Buckley 1981) described the first season's excavation, subsequent investigations have revealed a long sequence of activity.

A large part of a Mortlake style Peterborough bowl had been placed just above the primary silt of the eastern terminal ditch. Similar Peterborough sherds were recovered from a post 'ring' within the eastern terminal, which thus appears to be an early feature of the monument. About 200m from the eastern terminal, at a slight 'kink' in the south ditch, a segmented ringditch was constructed, cutting the partly silted Cursus ditch. A few small Peterborough sherds were recovered from the ringditch, whilst a somewhat amorphous central feature (possibly an inhumation grave, no bone survived in the acid gravels) contained three fine flint knives. A charcoal rich layer, containing Grooved Ware,¹ was deposited high in the ditch silts in the

north Cursus ditch close to the east terminal.

A similar deposit was recorded in the south ditch 140m from the eastern terminal. In this case, the pottery was of Bronze Age character. The small sherd size makes attribution to a particular vessel type difficult. However, the material included part of a ?cylindrical loomweight, a rim with marked internal bevel, and a shoulder sherd with applied plain cordon. One of the pits within the east end of the Cursus contained parts of a small urn of bionical form, again with a plain applied shoulder cordon. A ringditch excavated immediately west of the western Cursus terminal appears to be of Bronze Age date and other unexcavated cropmark ringditches are known from south and west of the Cursus.

The Springfield Cursus and causewayed enclosure were, for a substantial period, in contemporary use, and show some similarity in the nature of the deposits made at them. However, there are marked differences between the two monuments. The earlier phases of activity at the Cursus were associated with Peterborough Ware, which is absent from the Causewayed Enclosure. The Cursus clearly remained a focus of activity well into the Bronze Age, whereas, following the Beaker deposits at the Causewayed Enclosure, the site appears to have been unoccupied until the establishment of the Late Bronze Age enclosure (Buckley and Hedges 1987a). There is strong, if circumstantial, evidence for an association of the Cursus with the disposal of the dead. The Cursus is aligned with a long 'mortuary' enclosure and contained a ?burial within a segmented ringditch. In the Bronze Age, it appears to have provided a focus for round barrow construction. There is presently no evidence to link the Springfield Lyons Causewayed Enclosure with funerary practice. Such evidence is also lacking at Etton (Pryor 1988, 124) and this is a marked contrast with other enclosures in the east of England (Evans 1988(b), 134) and elsewhere (Mercer 1980, 1988).

A programme of large scale sampling and flotation to recover carbonized plant remains from all the recently excavated Neolithic sites around Chelmsford produced very little material.

Environmental data recovered during construction work in the vicinity of the Chelmer, largely post dates the Neolithic.

Evidence from an old channel of the Chelmer at Little Waltham indicated open damp grassland in the Early Bronze Age. Broadly contemporary evidence, from another former river channel about 1km south of the eastern terminal of the Cursus, indicates dense alder fenwoodland (Murphy forthcoming).

THE NEOLITHIC OF THE BLACKWATER

Wherever large scale excavation has taken place on the gravels north of the Blackwater Estuary, Neolithic occupation has been revealed, usually in the form of pit groups. Finds from these features comprise flintwork and Mildenhall style pottery, predominantly plain but with some decorated material. Typical of the kind of evidence encountered are the pits from Lofts Farm (Brown 1988). Comparable evidence has been revealed elsewhere within the Lofts Farm cropmark complex (Brown, P. et al 1984 - 5), from Chigborough, Howells and Slough House Farms (Wallis and Waughman forthcoming), Heybridge (Brown 1986), Heybridge Basin (Brown and Adkins 1988) and from recent excavations at Elms Farm. Carbonized plant remains recovered from all these sites were remarkably sparse (Murphy pers. comm, and forthcoming).

At least one very substantial posthole was present at Lofts Farm (Brown 1988, 252) where the pits appear to have been left open for a time before being backfilled. This allowed a stoney, sandy layer derived from the surrounding gravel to accumulate. Such a sequence is reminiscent of pits within parts of the enclosure complex at Hambledon Hill (Mercer 1980, 1988). However, owing to the unstable nature of features cut into the gravels, the Lofts Farm pits may only have been open for a short period.

At Elms Farm Neolithic features include a substantial pit, with large quantities of Mildenhall pottery reminiscent of the deposits in the Springfield Lyons Causewayed enclosure, and again comprising large parts of individual pots. Other pits produced substantial sherds of Mortlake style Peterborough Ware, an East Anglian Style Beaker, substantial parts of two further Beakers and a small quantity of Grooved Ware have also been recovered. A ringditch associated with cremation burials in Deverel-Rimbury urns was located nearby. This would appear to indicate a long lived focus of ritual/funerary activity.

An amorphous feature recorded at Chigborough Farm yielded a large quantity of early neolithic pottery; this feature lay about 35m south of a rectangular post built structure (Wallis and Waughman forthcoming). Finds from this building were sparse but included a fine Mildenhall rim sherd decorated with ripple burnish, unabraded, and possibly deliberately included in the fill of one of the postholes. The structure is just under 8m x 8m with an internal division, the dimensions are comparable to the 'house' from Fengate (Pryor 1974, 1993), and the plan is distinctly reminiscent of the central segment of the long Neolithic building at Lismore Fields, Derbyshire (Garton 1987). A row of close set posts runs for about 50m east-north-east/

west-south-west, from just east of the south-east corner of the building. These posts have no clear dating evidence but run at variance to extensive later field systems and might be of Neolithic date. A few pits with small sherds of Peterborough Ware and Grooved Ware, occurred south of the building and possible post row.

At nearby Slough House Farm shallower pits, with early Neolithic pottery (in this case, possibly Grimston Ware), Grooved Ware and Beaker were recovered. A rectangular enclosure about 27m x 12m aligned roughly east-west was defined by narrow steep sided gullies/palisade slots (Wallis and Waughman forthcoming). The structure can clearly be related to long mortuary enclosures/longbarrows (Kinnes 1992) and may originally have had a mound. A Late Style Beaker w;as placed in the upper fill of the ditch at the east end of the enclosure, this and some later Neolithic flintwork seem to date the last use of the monument.

However, it seems to have remained a respected feature of the landscape for many centuries. A ring ditch was constructed close to the south-east corner of the mortuary structure/barrow, whilst a broad linear feature associated with Iron Age pottery was dug adjacent and parallel to its south side (Wallis and Waughman forthcoming). A cropmark of a possible long mortuary enclosure lies about 8km to the east at Tollesbury (Buckley et al 1988 Fig. 11, Table 5). The numerous scatters of subsoil features from the gravel terraces, are placed in clearer context by the results of investigation in the adjacent intertidal zone of the Blackwater estuary. This evidence ranges from palaeosoils, peat deposits and artefact scatters, to occupation complexes like The Stumble and Rolls Farm, and has been summarised (Wilkinson and Murphy 1986), and fully described elsewhere (Wilkinson and Murphy 1995 and forthcoming) only a few of the salient points are noted here.

The best evidence derives from The Stumble, which lies in the estuary about 3km south-east of Chigborough Farm. It appears that high water mark during the early Neolithic approximated to present day low water mark (Wilkinson and Murphy 1995 and forthcoming). The site would then have lain on the neck of a promontory between areas of higher ground represented by the present shore and Osea Island, with small water courses to east and west flowing into the main estuary to the south. The term site in this case is even more of a misnomer than usual, since The Stumble is essentially a substantial fragment of well preserved landscape.

Initial survey showed artefact and burnt flint spreads over a wide area, in places concealed by recent alluvium. Subsequent sampling and small scale area excavation, conducted in the few hours available

each day between the falling and rising tides, clarified the developing nature of the occupation.

Pollen analyses from soils at the Stumble, and at Rolls Farm further out in the estuary to the east, produced little evidence for forest clearance (Scaife 1995, 47–51). Plant remains were plentiful at The Stumble, in contrast to the adjacent dryland sites. Cereals were dominated by Emmer wheat with some Einkorn, bread wheat and naked barley were also present. The samples mainly appeared to derive from processed crops, but some crop processing activities were also represented. However, remains of woodland plants were as common as cereals. These included not only the ubiquitous hazelnut shells, but fragments of apple, sloe, blackberry, hips, haws and a variety of roots, tubers and rhizomes (Murphy forthcoming).

Two areas of early Neolithic activity were partly excavated at The Stumble, described as areas A/B/E and C. Artifacts were prolific in the preserved soils, pottery being of Mildenhall style, with a rather higher proportion of decorated material from area C, about 90% of the pottery derived from the soils which were around 0.20m deep. There were indications that pottery from the rather slight subsoil features particularly from area C had been deliberately selected for deposition.

The quantity of pottery contained in the preserved soils at The Stumble is enormous, 2,360 sherds from the 142 m² of area A,B,E whilst the 12,000 m² excavated at Broome Heath (Wainwright 1972) only produced 9,326 sherds. It is uncertain whether every Neolithic site, which only survives as subsoil features, would originally have had superficial deposits like those at the Stumble. However, there seems little reason to suppose the Stumble is an atypical site. The Neolithic soil preserved beneath the bank at Broome Heath yielded ‘.....a great quantity of Neolithic pottery and flint artifacts.....’ (Wainwright 1972, 3), the ‘culture layer’ at Hurst Fen (Clark et al 1960) may represent the remains of a deposit like those at the Stumble. It may be that the scatters of Neolithic pits, recorded on the gravel terraces along the Blackwater estuary, represent sites from which the superficial deposits (together with perhaps 90% of the pottery once present) have been removed by plough and machine.

Later Neolithic activity at the Stumble was represented by a low burnt flint mound which would have been, by then, quite close to the edge of the tidal estuary. Also present were pits infilled with charcoal and burnt flint, with Grooved Ware and Beaker pottery, essentially similar to the ‘cooking holes’ recorded on the coast of north-east Essex (Warren et al 1936). No cereal remains were recovered from these features, although hazelnut shell and apple fragments were frequent,

possibly indicating a specialised site processing woodland products.

At various locations along the Blackwater estuary and at Dovercourt on the north-east Essex Coast, dense layers of charcoal occur, generally, with few, or no artifacts. They are radiocarbon dated to the Late Neolithic and appear to indicate some form of forest clearance (Wilkinson and Murphy 1995, 86–90).

DISCUSSION

It is clear that the widespread pit scatters on the gravels, and numerous 'sites' within the intertidal zone could be easily accommodated within an extensive system of landuse. A pattern of shifting settlement in successive, small woodland clearances, dependent as much on wild plants as cereal cultivation. This is supported by the pollen evidence, showing a lack of large scale forest clearance, and plant remains with a high proportion of woodland species from sites within the intertidal zone. Such close association of pollen evidence and plant remains has hitherto been a rare occurrence in the British Neolithic (Kinnes 1988).

All of this accords well with the view that much of the 'Neolithic economy' was essentially of 'Mesolithic' character. Since many of the wild plant foods present at the Stumble are autumnal, it may be that these low lying sites were seasonally occupied, although the evidence could of course relate to stored resources. It is difficult to know how far the evidence from such locations would be applicable to other parts of the river system. Larger scale clearances may have existed elsewhere, and it is clearly tempting to suggest that a long monument like the Springfield Cursus was constructed on cleared ground. Although it should be recalled that the very much longer Dorset Cursus ran, in part, through woodland (Barrett et al 1991, 34).

The small scale nature of Early Neolithic forest clearance in the Blackwater estuary and elsewhere in what is now the intertidal zone (Wilkinson and Murphy 1995, 216) is reminiscent of Peacocks Farm on the south-eastern Fen Edge (Smith et al 1989). However, the occupation at Peacocks Farm was clearly very different from that at The Stumble. Peacocks Farm has no evidence for permanent structures and few artifacts, the site is interpreted as a frequently revisited camp, probably linked with longer and more permanently occupied sites like Hurst Fen on nearby dryland (Smith et al 1989). The Stumble and presumably Rolls Farm are rather different, the great quantity of artifacts and some, albeit slight, structural evidence indicates a fairly intensive occupation. These sites may have been occupied, perhaps not permanently, but for considerable lengths of time, at particular

seasons. Other sites and findspots recorded around the Essex Coasts, particularly some of those recorded in the remarkable complex of sites at Mundon on the south side of the Blackwater Estuary (Wilkinson and Murphy 1995 81–86), may be more closely equivalent to the Peacocks Farm campsite. There are clear contrasts between the relatively slight pits and postholes encountered at The Stumble and the more substantial features present at sites on the adjacent gravel terraces (eg. Lofts Farm, Brown 1988; Chigborough Farm, Wallis and Waughman forthcoming). However, it should be remembered that only small areas of the Stumble have been excavated, and more substantial features may exist elsewhere within the Stumble complex (Wilkinson and Murphy forthcoming).

The occurrence of woodland in low lying areas, now within the intertidal zone, throughout the Neolithic is striking, and a marked contrast to the Lower Welland Valley (French 1990). The evidence from the Late Neolithic pits at The Stumble, compliments indications of dense oak/alder fen woodland in the much narrower Crouch estuary to the south (Wilkinson and Murphy 1995,90 and fig. 60). If the numerous charcoal spreads from around the Essex coast are indeed evidence of anthropogenic forest clearance, the general lack of artifacts and evidence for cultivation is remarkable. Such clearance could have been intended to open up the forest to promote new growth and attract a diverse range of plants and animals, again a very 'Mesolithic' practice. This suggests woodland management of a very different kind from the 'coppicing' evidenced from the Somerset levels and Etton Causewayed Enclosure.

In general, such Neolithic structures and monuments, as are present within the study area, are broadly aligned east-west. This is the case with the Slough House Farm Mortuary enclosure/barrow and the Tollesbury cropmark enclosure. Such an arrangement is perhaps unsurprising. The monuments thus follow the general 'grain' of the landscape, roughly parallel with the contours and flow of water in the river/estuary, and the broader pattern of the rising and setting sun. However, there is a tendency to an east north east/west south/west alignment, and this is most marked with the Springfield Cursus and Mortuary enclosure. This may reflect the local topography, allowing the Cursus and mortuary enclosure to cut off the spur of higher ground as noted above. This still allows the Cursus alignment to follow the general flow of the river and contours of the valley. Comparison with the Mortuary enclosure at Rivenhall in the valley of the River Blackwater, to the north, (Buckley et al 1988, fig.2) is instructive. The location is comparable to that of the Springfield

Cursus, but on a smaller scale ([Figure 9.3](#)); the mortuary enclosure lies at the centre of an arc formed by the edge of the gravel terrace framed by a slight bend of the river. The long mortuary enclosure could easily have been sited to cut off the neck of the gravel 'promontory' and would thus have been aligned with the valley contours, and flow of the river.

However, this would have meant a very nearly north-south alignment of the monument. Instead of this, the enclosure was laid out east-west in the centre of the small promontory. In this instance, it seems that wider cosmological concerns outweighed the impact of the local topography.

It is clear that the two halves of the landscape referred to in the title, are in large part, a product of the split in archaeological fieldwork, responding to threats in different parts of the valley, coupled with the excellent preservation in the intertidal zone.

However, despite good air photographic coverage along the Blackwater estuary and extensive survey of the intertidal zone, no major monuments to match the Springfield examples have been revealed. There thus appears to be local variation within the river system. Relatively large and complex monuments were built in the upper valley, small examples like the Slough House Farm 'barrow' around the estuary.

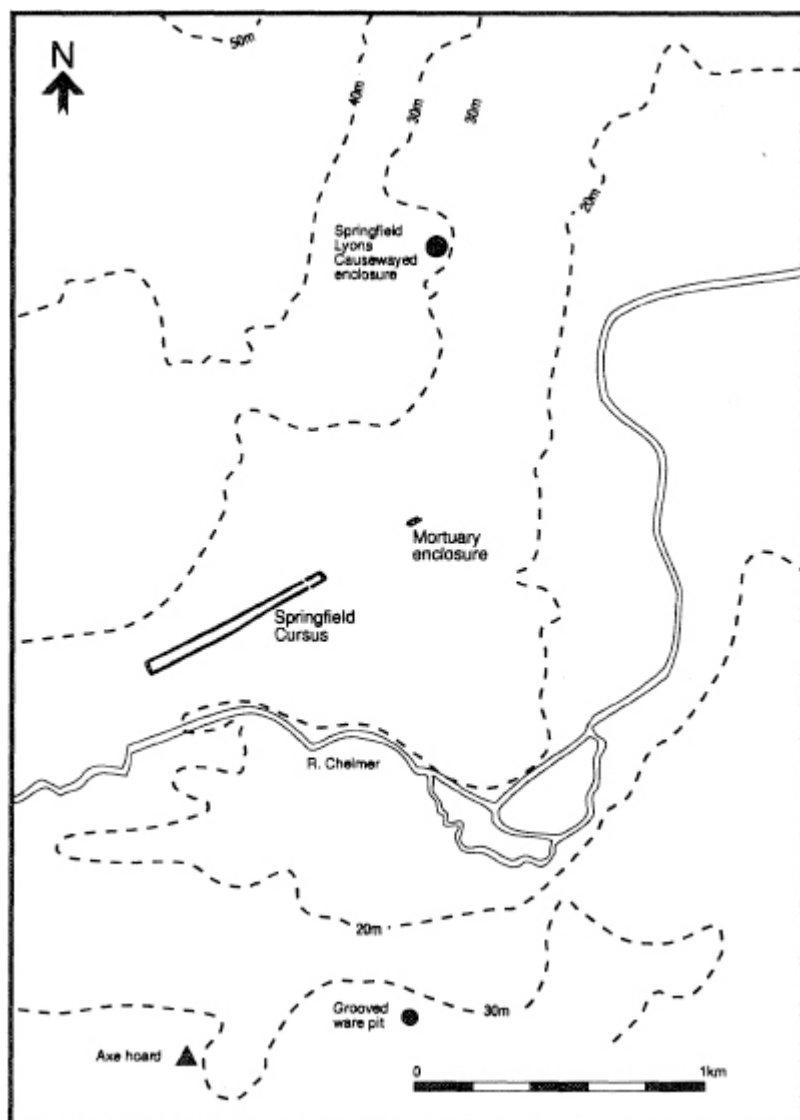
Part of the reason for this differential occurrence of monuments, may lie in the local topography. Both the Springfield Causewayed Enclosure and Cursus lie close to the edge of the boulder clay plateau ([Figure 9.2](#) and Allen and Sturdy 1980), indeed the boulder clay outcrops only about 500m north-west of the Springfield Causewayed Enclosure. This is a major geographical boundary; with the river gravels, estuary and ultimately the sea to the east, and the extensive relatively high boulder clay plateau to the north and west. Neolithic activity on the boulder clay has not been extensively studied, although surface collections of flintwork accumulated as a result of various field surveys are becoming quite widespread. None of this flintwork has yet been studied in any detail, although there are indications of Neolithic and indeed Mesolithic activity (Havis pers. comm.) The Springfield monuments thus appear to lie at a transitional point for people passing from the river valley up onto the boulder clay. In view of this, it is probably not coincidental that these monuments were constructed so close to the confluence of the Rivers Chelmer and Can, since these rivers would have provided major routeways into the boulder clay area. It appears that the Orsett causewayed enclosure may occupy a somewhat similar location; with the gravel and brickearth terraces

fringing the Thames estuary to the south and east, Orsett Fen and a broad zone of London Clay to the north and west. The location of these monuments is reminiscent of the situation of the Dorset Cursus, and Rudston Cursus complex which lie at boundaries between major topographical zones subject to differential landuse and settlement in the Neolithic (Bradley 1992).

Whilst clear general contrasts between the Neolithic landscape and monuments of Wessex and various parts of eastern Britain are now well known, localised variation is becoming increasingly apparent.

Attempts to define regional monument types are proving difficult, as Evans (1988(b)) has discussed with regard to causewayed enclosures.

Similar difficulties, with maintaining the broad regional styles of decorated earlier Neolithic pottery, are also becoming apparent (Longworth 1990, Cleal 1992). This can be seen locally in the Mildenhall pottery from Springfield Lyons and the Stumble (Brown forthcoming), which shows certain typological traits rather different from the Mildenhall assemblages, further north in East Anglia. The importance of examining detailed local variation has been noted by Whittle (1990), and the situation within the Chelmer Valley/Blackwater Estuary may be a fruitful area of study.



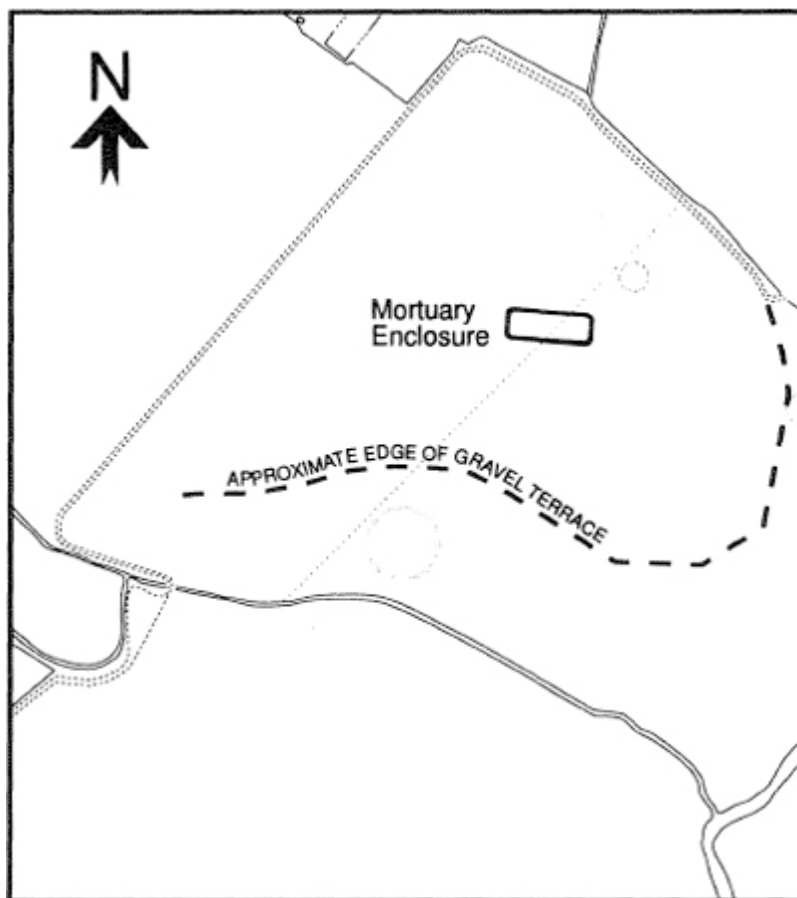


Figure 9.3: Comparative location plans of Springfield Cursus (top), and Rivenhall Long Mortuary enclosure (bottom)

Note

1. The radiocarbon dates from the Cursus (Gibson and Kinnes 1997) were associated with this Grooved not Peterborough Ware.

Lab. No.	^{14}C Age (BP)	Weighted mean (BP)	Calibrated date range (1 σ)
HAR-6266	3990 ± 80	4023.3 ± 46.2	cal BC 2560–2490
HAR-6268	3960 ± 80		
HAR-6271	4120 ± 80		

cf. Gibson, A, and Kinnes, 1, 1977, On the urns of a dilemma: Radiocarbon and the Peterborough Problem, *Oxford Journal of Archaeology*, 16/1, 65–72.

Neolithic settlement at Yarnton, Oxfordshire

Gill Hey

INTRODUCTION

The Yarnton-Cassington Study Area lies eight kilometres north-west of Oxford, on the north bank of the river Thames (SP4711, [Figure 10.1](#)). Work here by the Oxford Archaeological Unit was prompted by the opening of an 140-hectare gravel extraction pit by ARC in 1989, between and south of the villages of Yarnton and Cassington. Planning permission for this development had been obtained before current legislation was in place and no archaeological conditions were imposed upon the developer. It quickly became apparent that an extensive archaeological landscape had survived in this area, with sites dating from the Neolithic into the later Saxon period. Of particular note was the quality of the evidence relating to Neolithic and early Bronze Age occupation of the area, which included domestic activity. As a result of the significance of the archaeological remains, English Heritage have funded a large programme of fieldwork, which has been running since 1990.

The area of investigation lies both on a gravel terrace (Summertown-Radley or second terrace) overlooking the Thames floodplain and, mainly, on the floodplain itself ([Figure 10.2](#)). There is an increasing shift in the focus of gravel extraction in the region from higher terraces onto the floodplain (Lambrick 1992,211), partly as a result of the perception that there are fewer archaeological remains there. The ARC pit at Yarnton and Cassington has provided us with our first opportunity in the Upper Thames Valley to examine floodplain archaeology on any scale and our work confirms earlier predictions (Darvill 1987(b)) and other work in the country (for example Pryor et al 1985, Needham and Macklin 1992) that, far from blank, these areas are a particularly rich archaeological resource.

THE ARCHAEOLOGICAL BACKGROUND

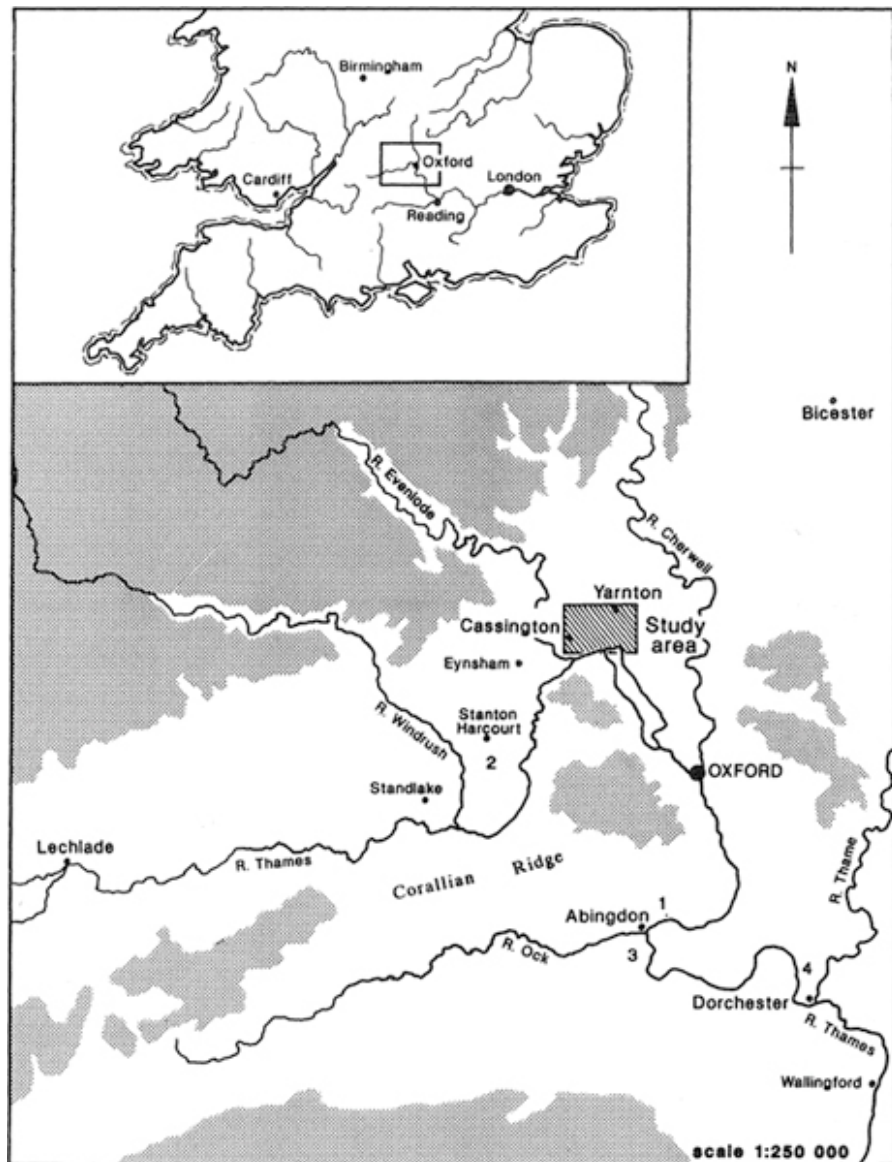


Figure 10.1: Site Location. Shaded areas represent land over 100 m 1. Abingdon causewayed enclosure 2. Devil's Quoits circle henge monument 3. Drayton cursus 4. Dorchester cursus

In this part of the river valley the Thames loops around the Corallian ridge before flowing south to Oxford (Figure 10.1), and the south bank of the river is narrow. To the north, however, lie wide gravel terraces which were favoured for occupation in the past. Here were located the sites found during gravel extraction round Cassington Mill in the 1930s – 1960s (Benson and Miles 1974, 84-7), including late Neolithic pits in Smith's Pit 2 (Case and Whittle 1982) and the Cassington Beaker “flat grave” cemetery excavated (or, rather,

salvaged) by E.T. Leeds in 1934 in Tolley's Pit (Leeds 1934) ([Figure 10.2](#)). Peterborough Ware pottery was recovered in salvage work in Tuckwell's Pit, immediately adjacent to the current Study Area (Leeds 1940, VCH Oxon i, pl. IIIa). Within the wider Evenlode confluence area, a Neolithic burial enclosure, was excavated at New Wintles Farm, north of Eynsham (Kenward 1982) and several Beaker burial sites are known (notably the "flat grave" cemetery at Foxley Farm, Eynsham (Leeds 1938)). All these sites lay on the second gravel terrace. Beaker burials and pits have occasionally been located in Oxford itself (Leeds 1938), on the gravel terrace, but a single Beaker grave has also been excavated on the floodplain at the Hamel (Palmer 1980, 128–31).

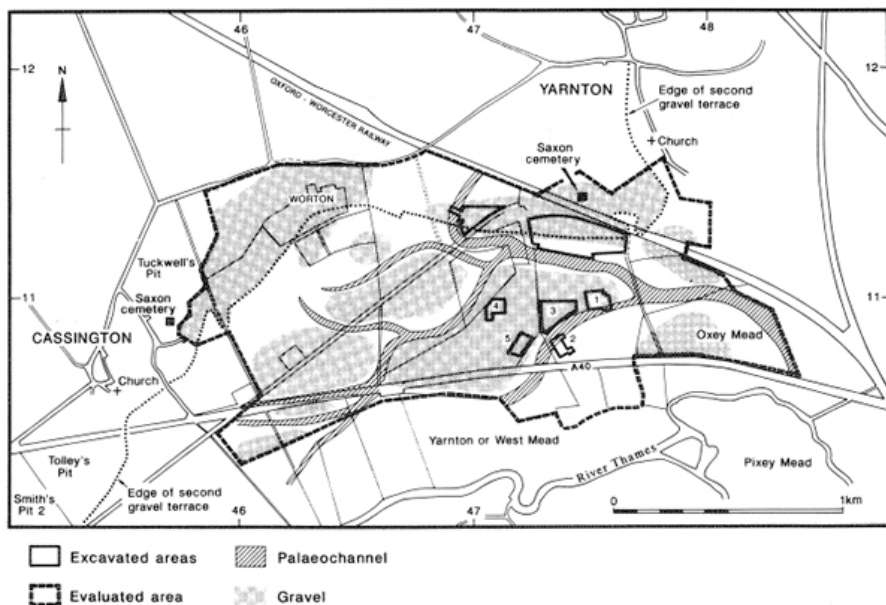


Figure 10.2: The Study Area

Although these burial sites and pit groups have been found in the vicinity of the project area, it lies away from the known, major monument complexes. The nearest of these are situated in the lower Windrush Valley (including the Devil's Quoits circle henge monument) c 12 km upstream, and around Abingdon and Drayton 17 km downstream (Case 1986) ([Figure 10.1](#)).

THE YARNTON-CASSINGTON PROJECT FIELDWORK

We were first alerted to the presence of archaeological sites in the Study Area by air photographs. However, although ring ditches are visible in nearby fields on the gravel terraces, close inspection of the

air coverage (principally in the Royal Commission on the Historic Monuments of England, National Monuments Record Centre, the University of Cambridge air photography library and the Ashmolean Museum) has failed to yield evidence of sites predating the Iron Age in the gravel pit. The aerial photographic record has however proved invaluable for providing early topographical detail.

Evidence for Neolithic occupation in the Yarnton-Cassington Study Area is derived from three main sources: area excavation, field evaluation and fieldwalking ([Figure 10.2](#)):

1. Three large excavation seasons have been undertaken: firstly on the gravel terrace where c. six hectares have been excavated and observed (sites largely of Iron Age, Roman and Saxon date, but with a Neolithic and early Bronze Age component), and secondly on the floodplain where c. 4.5 hectares have been examined on a gravel island and more low-lying ground. Several large sections into palaeochannels have also been looked at in detail.

2. A 2% sample of a further 105 hectares has been investigated by machine-trenched evaluation, largely to the west of the excavation areas and, in total, 340 trenches (normally 30 m x 2 m) have been excavated within the gravel pit area and a further 53 trenches just beyond. Test-pit sieving in three transects (51 1 m x 1 m pits in all) was carried out in conjunction with this work. In addition, various geophysical techniques have been attempted along with other survey methods, notably fieldwalking.

3. One-hundred-and-eighty-two hectares were fieldwalked both within and beyond the threatened area in 1990, with the primary aim of locating manuring scatters on fields farmed from the Roman settlement which was at that time under excavation. The area surveyed included higher (fourth) gravel terraces as well as second terrace and floodplain. The information gleaned from this exercise provided the first indication of earlier prehistoric activity in the gravel pit area.

The majority of the data presented here has only been assessed and not fully analyzed and what follows is, therefore, a provisional statement of the results. Radiocarbon determinations are expressed to a 95% level of confidence cal BC and have been calculated according to Stuiver and Reimer (1986).

THE PREHISTORIC TOPOGRAPHY

The present, fairly flat landscape masks a much more varied past topography and, working from air photographs, ARC borehole data

and, more recently, machine trenching, it has been possible to go some way to reconstructing the prehistoric landscape (Figure 10.2). It can be broken down into two elements:

1. Gravel terrace to the north, approximately above the 62 m contour, cut through by late glacial channels which had mostly filled by the Neolithic.

2. A wide floodplain. Small channels cut across the floodplain area creating islands in the gravel. Where these channels had migrated in the past, a dry land surface had developed on lower-lying ground over earlier (late Devensian) channel silts. The floodplain was drier than it is today and a lower water table is evidenced by the dry, inorganic fills of Neolithic pits on the gravel islands, cut to the same depth as features which, by the later Bronze Age, contained waterlogged organic material. Channels were stable throughout this period, and indeed, some may have been dry seasonally.

NEOLITHIC AND EARLY BRONZE AGE SITES

Fieldwalking results (Figure 10.3)

Flint scatters detected during fieldwalking on higher ground were much as expected. A light scatter was present on the highest, fourth gravel terrace and a denser scatter on second gravel terrace, around the modern hamlet of Worton, over the site of a known ring ditch. It was not possible to fieldwalk the main area of the gravel terrace excavation site in advance of excavation, but flint was recovered from the topsoil during stripping and redeposited in later features. These scatters were late Neolithic and early Bronze Age in date.

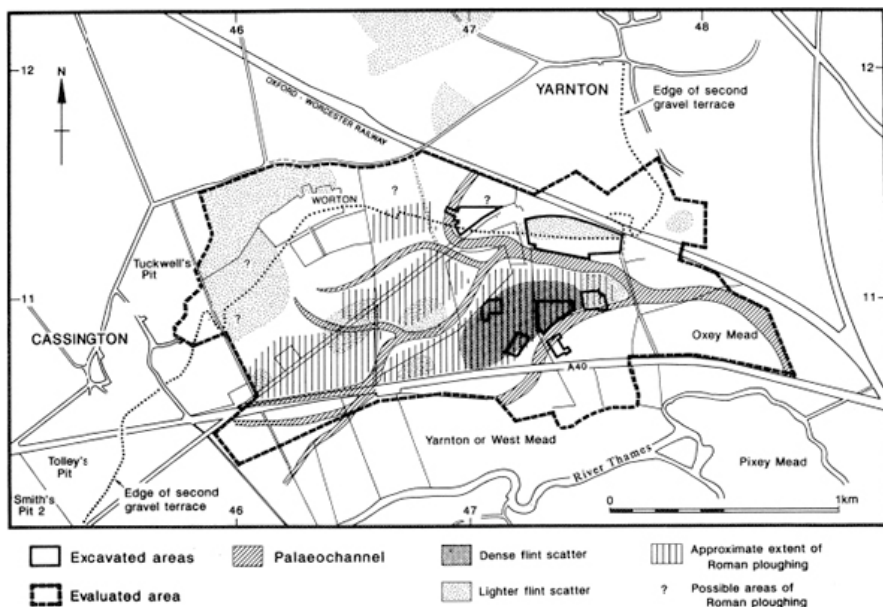


Figure 10.3: Neolithic and Bronze Age Fieldwalking Results and the Roman Fields

Completely unexpected was the pattern on the floodplain, where finds were more concentrated, included more burnt stone, and were apparently coincident with gravel islands. Subsequent work has shown that the material found on the modern fields here is derived, not from modern ploughing truncating prehistoric features, but by modern cultivation cutting into Roman ploughsoil. The scatters are thus a reflection of the extent of Roman cultivation rather than of the presence and density of earlier prehistoric sites (though these are sometimes coincident).

Gravel terrace sites

Excavations have taken place in two fields on the Yarnton gravel terrace (Figure 10.4). Amongst the maze of later features on the eastern site, two certainly Neolithic features were excavated: a pit containing Mortlake Ware and accompanied by charcoal, hazelnut shells and crab-apple pips, with a little barley present, and a small pit containing 70 late Neolithic flints, in the top of which cremated animal bone had been deposited. Two radiocarbon determinations on the Mortlake Ware pit gave a date of 3290–2670 cal BC on a hazelnut (4310 ± 80 BP; OxA-4661) and 3620–3045 cal BC on oak charcoal (4605 ± 80 BP; OxA-4662). A later date, in the first half 3rd millennium, was obtained for the flint pit (3325–2670 cal BC on pig bone (4330 ± 90 BP; OxA-4663), 2865–2290 cal BC on hazel charcoal (3985 ± 80 BP; OxA-4664) and 2920–2580 cal BC on pig bone from

the cremated deposit (4190 ± 75 BP; OxA-4665)).

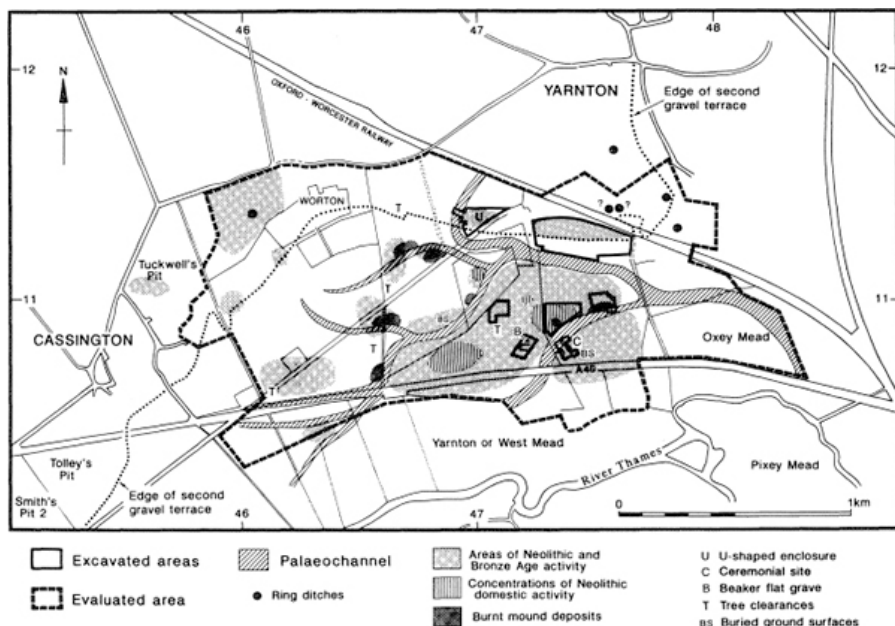


Figure 10.4: The Neolithic and early Bronze Age Landscape

Excavations in 1995 on the western site unexpectedly revealed a U-shaped enclosure of uncertain date (Figure 10.4, U), made up of discontinuous shallow ditches. Within the open end lay two inhumation burials and another inhumation lay 8 m to the south. Traces of a wooden coffin were found in one grave which also yielded a single sherd of rusticated Beaker. A large pit, 40 m to the east, contained a rich assemblage of material including a quantity of coarse, rusticated Beaker and the skeleton of a baby.

Beyond these sites, to the east, a ring ditch can be seen on air photographs, two possible ring ditches were detected during magnetometer survey by Archaeometry Branch of the Ancient Monuments Laboratory and, immediately to the north of the railway line, gravel extraction in the 19th century in order to build the railway embankment, uncovered at least two ring ditches yielding Beaker finds, including a very fine copper neck-ring, which is illustrated in Clarke, Cowie and Foxon 1985 (pi. 7.24).

This pattern is typical of second terrace sites in the Upper Thames Valley (see Holgate in Bradley and Holgate 1984, 112–4), especially in the Yarnton-Cassington area: localised flint scatters, a light scatter of pits, largely comprising structured deposits and, often along the edge of the terrace, ring ditches and other burial monuments mostly of late Neolithic and early Bronze Age date.

Floodplain sites

It has been on the floodplain, however, where the most important discoveries have been made (Figure 10.4). There, archaeological remains are located on gravel islands, within and on the edges of channels and on lower ground. They are found within the context of persistent occupation of the area throughout the Neolithic and early Bronze Age, spatial separation of feature (and hence period) groups, equal preservation across the floodplain and good landscape and environmental evidence.

Current evidence suggests that a contrast can be drawn between gravel terrace and floodplain which is not just the product of differential survival. Gravel islands on the floodplain seem to have been genuinely favoured locations for occupation, in that the activity appears denser than on the gravel terraces. It also seems likely that a wider range of activities occurred on the lower topographies with domestic sites and areas where tasks peripheral to settlement were carried out, as well as ceremonial and burial sites. Further work is needed to explicitly address the relationship between the density of surface flint scatters on gravel terrace sites and the quantities of finds recovered from surviving features on the floodplain, and also to compare the range of material recovered from them.

One of the notable aspects of the floodplain archaeology excavated to date has been the apparent zonation of feature types (Figure 10.5). Four distinct groupings of features have been identified:

1. On low-lying ground, which would have been fairly dry throughout the Neolithic and early Bronze Age, a site with a seemingly ceremonial function was located (Site 2). An in situ finds scatter was found on the buried ground surface, which included artefacts of a higher quality than located elsewhere so far, including leaf-shaped arrowheads and an edge-ground knife. Pottery included Plain Bowl, Peterborough Ware, Grooved Ware and a little Beaker, and was surprisingly well preserved. Cut through this surface were successive ditches, and later posthole, alignments running from the channel south-east to the Thames. Curious, parallel rows of slots cut and lay adjacent to the ditches. Ebbsfleet Ware came from one of the earliest ditches (one of a pair of parallel features 60 m apart). A ditch containing a few Beaker sherds was linked to a penannular ditch on the edge of the channel (a ring ditch lay on the opposite bank). Absent from this site were apparently domestic features, pits containing 'special deposits, carbonized plant foods and burials (despite good bone preservation).

2. North of, and on the bank of the channel, lay a group of sites apparently related to burial practices. A Neolithic rectangular enclosure, of a type thought to be associated with mortuary practices (Whittle et al 1992, 152), lay to the west of the channel (Figure 10.5, Site 5). No datable finds were recovered from the lower fills, though Peterborough Ware (Fengate sub-style) came from upper deposits. A small cremation lay in the centre of the enclosure and an unaccompanied, and as yet undated, inhumation near the southern entrance. Another, possibly Bronze Age, inhumation cut the top fill of the enclosure. The ring ditch, probably of late Neolithic/early Bronze Age date, lay 150 m north-east, apparently at the north end of the alignments of Site 2. The area between these two monuments was either examined on Site 5 or observed during ARC topsoil stripping. Apart from a few postholes on the west edge of the ring ditch, the only features recovered in this area were four cremations and a Beaker “flat grave” with a grave group comprising one fine and one cruder Beaker pot, an end scraper and six barbed-and-tanged arrowheads. This is an unusually low-density of feature recovery for this gravel island and underlines the special nature of those deposits which were present. Beaker “flat graves” on the floodplain may contrast with ring ditches on the gravel terrace here.

3. Evidence of Neolithic domestic occupation has been found on all the gravel islands, but particularly on the long central island spreading over 1 km in length (Figure 10.4). To date, this information is mostly known from evaluation, but has been excavated in some detail on Site 3 (Figure 10.5). It is largely represented by scatters of postholes, pits, some of which were clustered and contained structured deposits, and finds found within the tops of treethrow pits. No human remains have so far been recovered from these areas.

4. Areas where activities that were undertaken “off-site” have also been located, particularly on the edges of the palaeochannels (Figure 10.4).

A three-sided arrangement of linear gullies, probably Beaker in date, and another similar feature to the east, lay within the putatively domestic area. These features are of uncertain purpose, but could have been ceremonial/ritual in character and their presence cautions against a simplistic model of Neolithic/early Bronze Age activity. Similarly a Grooved Ware pit containing a placed deposit lay within the rectangular enclosure. In general, however, the distinctions outlined above hold true.

Domestic sites

Scatters and small clusters of postholes, as seen over 1.5 hectares on Site 3 (Figure 10.5), are thought to represent the remains of insubstantial, short-lived structures, although no Neolithic buildings have been defined. Small pits are associated with these. Some of the pits contained deposits which appeared to be deliberately placed and it is from these that the most highly decorated and datable pottery has been recovered. Granted the special nature of these features (Thomas 1991, 59–64), they are believed here to be associated with domestic areas and contain domestic refuse, even if this has been selected in some way. The absence of these features from both the putatively “ceremonial” and “burial” areas (except for the Grooved Ware pit within the rectangular enclosure) supports this suggestion. Observable differences in the quantity, quality and range of material (principally pottery and flint) recovered from different pit groups, several yielding the same pottery styles, may indicate the complexity of human activity on the gravel island.

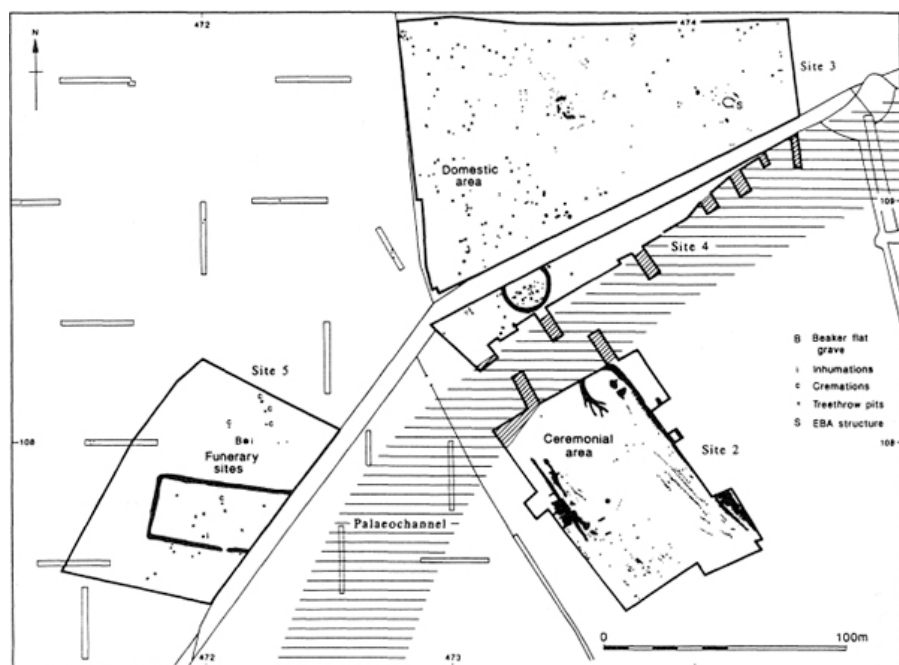


Figure 10.5: Sites 2, 3 and 5, showing Spatial Separation of Feature Type

Neolithic and early Bronze Age finds have also been found in the tops of treethrow pits. These seem to have been hollows either used for the casual disposal of rubbish or where refuse collected naturally,

and they will provide an interesting data set against which to compare the material from “deliberate” deposits.

Differences can be seen in the contents of the different feature types. For example, fired clay is seldom found in pits containing special deposits and is most commonly found in threethrow pits; burnt stone on the other hand is most dense in placed deposits and the flintwork from these features is certainly of a higher quality. Carbonized material was found in a range of features, though several Grooved Ware and two Beaker pits contained particularly rich deposits. The pattern is complex and our analysis to date has been superficial, but there appears to be little doubt that this material derives from domestic activity.

The range of periods represented at Yarnton is impressive. The earliest evidence of occupation is from a small group of two pits and a treethrow pit which yielded Neolithic Decorated Bowl in the Abingdon Ware style (Avery 1982, 26–35). Peterborough Ware has been located in a domestic context in a small group of three pits in the excavation areas and much further to the west on the same gravel island, where evaluation uncovered pits containing Peterborough Ware in the Mortlake and Fengate sub-styles. It has been much more common in the ceremonial and burial features. Grooved Ware pits have been more numerous, mostly but not always lying in small groups.

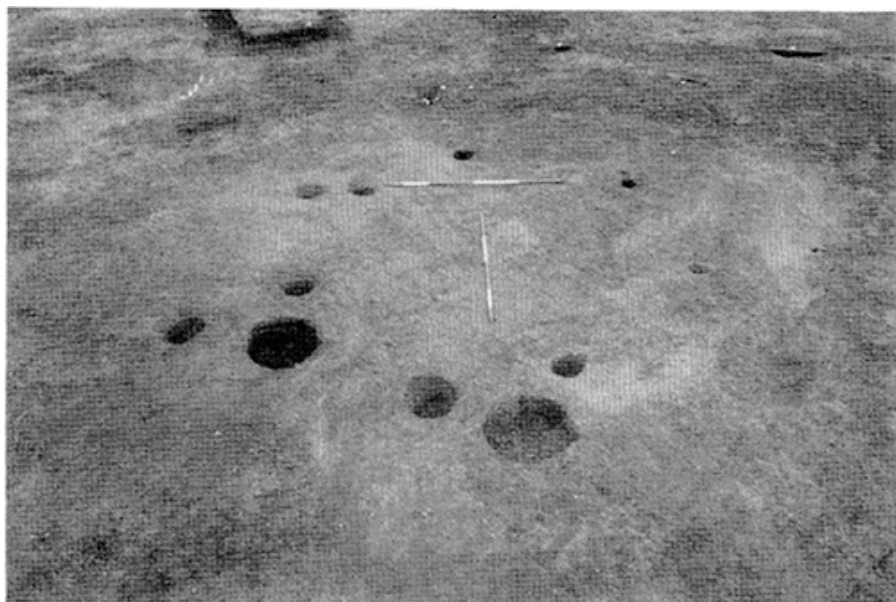


Figure 10.6: The earliest recognisable structure at Yarnton (early Bronze Age) (Photograph by Christopher Bell)

Domestic evidence becomes increasingly substantial and visible

through time. Two Beaker pit groups lay to the east which produced the largest assemblage of Beaker from a non-funerary context in the Upper Thames Valley, and by the early Bronze Age small circular structures are apparent (Figure 10.6).

“Off-site” activity

Sites external or peripheral to settlement have been located (Figure 10.4) and these seem to be associated with the channels. Buried ground surfaces along the edge of the channel have yielded artefact scatters, in particular flint and spreads of trampled stone, some burnt. Quantities of flint seem to be greater in these locations and flint knapping may be taking place here.

Burnt mound deposits have also been found. Where diagnostic finds have been recovered in association with these deposits, they are usually Bronze Age in date, but not exclusively so. Evaluation in the west of the floodplain area uncovered a shallow spread of charred material and burnt stone which also filled small features. One such, a rectangular fiat- bottomed pit associated with post and stake holes (possibly representing a structure), yielded two sherds of late Neolithic/early Bronze Age pottery. Further work is needed to elucidate the character and purpose of these deposits but to date they have been devoid of food refuse and contained only wood charcoal. Burnt stone spreads have also been found in association with burnt treethrow pits, could some be linked to tree clearance?

Plant foods

An extensive programme of environmental sampling has been undertaken during the course of the excavations which enables us to start to reconstruct the environment and economy for this period and its change through time. One of the most striking features of the evidence is the overwhelming dominance of wild resources over cultivated cereals in the Neolithic. Typical assemblages comprise quantities of hazelnut shells, occasional stones and pips of wild fruits (especially apples and sloe) and very occasional cereal grains: wheat (emmer and free-threshing) and barley. In fact only a very few cereal grains have so far been recovered from the floodplain in features pre-dating the Beaker period, reinforcing the pattern described by Moffett, Robinson and Straker (1989). There seems to be a fairly dramatic increase in cereals from Beaker pits, but as so few have been excavated it would be hard to claim that this formed a representative sample, and generally crop remains are poorly represented until the Iron Age.

No evidence of Neolithic or Bronze Age ploughing has yet been recognised in the Yarnton-Cassington Study Area and the limited extent of arable farming is borne out by the presence of stone-free soils in shallow Neolithic and Bronze Age features on the gravel island indicating that mixing of soils through arable cultivation was not occurring to any extent.

Few quernstone fragments have been recovered from the Yarnton floodplain sites and only one of these came from a potentially Neolithic context.

Animal foods

By contrast the animal bone found suggests that utilisation of wild animal resources was slight. Unfortunately, animal bone is poorly preserved on those parts of the gravel island excavated so far, because of the depth of the overlying acidic Pleistocene loam which covers the gravel. It is much better preserved in the channels and the lower-lying soils and evaluation suggests it is also better-preserved further to the west on the gravel island.

There is no doubt, however, that the faunal assemblage is dominated by domesticated species, particularly cattle and that this is true for all periods (Pippa Smith pers. comm.). Deer is present in small quantities, though largely in the form of antler (the antler is too fragmented to ascertain whether it has been shed or cut). No wild birds or fishes have been found despite intensive sampling. It is suggested that pastoralism was the main economic activity of the inhabitants of this area, located as it was on rich pasture. By the later Bronze Age there is evidence from the beetle and snail record of intensive animal rearing.

THE NEOLITHIC LANDSCAPE

Evidence of the wider environment of the Study Area is derived from beetles, snails and pollen, though analysis is at a very early stage and almost exclusively comes from the east of the gravel extraction area. Evidence from the ceremonial site (Site 2) suggests that there was open, grazed grassland here but waterlogged remains from the Neolithic ditches, including leaves and fruits of alder, suggest a background of woodland. The area of the Neolithic enclosure (Site 5) was open during and immediately after its construction but the molluscs indicate woodland regeneration (tentatively by the late Neolithic) before the ditch was fully filled. The area was once again clear when the ditch was finally filled and, therefore, before the middle Bronze Age. Grazed clearings, possibly quite large in size, but

within a wooded landscape would be most consistent with the evidence.

There is little other data from the locality, but what does exist provide a mixed picture. Pollen cores taken by Petra Day at Sidlings Copse, 4 km north-east of Oxford, on Corallian limestone and sand, indicated alder woodland on low ground and lime dominating well-drained ground with an increasing incidence of hazel and herb pollen through the Neolithic. Although there were fluctuations in tree pollen frequencies in the Neolithic, it was not until the late Neolithic/early Bronze Age that major disruption of woodland occurred. The first cereal pollen appeared at the same time (Day 1991). Snails from the late Neolithic henge ditch at the Devil's Quoits, further to the west, indicated that the monument lay within grazed pasture throughout the time that the ditch was silting (Evans 1995).

Tree clearance is evidenced in the Yarnton-Cassington area by groups of treethrow pits containing charred material, probably the result of burning stumps in situ. Sometimes they contain finds of late Neolithic and early Bronze Age date but these episodes have not yet been closely dated. At the Drayton Cursus ([Figure 10.1](#)) two phases of clearance are indicated by the radiocarbon dates, one in the earlier Neolithic and another late Neolithic/early Bronze Age in date (Robinson 1992, 202).

CONCLUSIONS

We have so far dug only a tiny percentage of this landscape which will be destroyed by gravel extraction over the next ten to fifteen years, and are at an early stage of investigation into Neolithic occupation of the area. However, environmental, topographical and archaeological evidence from this site are combining to provide a remarkably full picture of domestic settlement and its change through time, which has relevance beyond the immediate region. It can be suggested that small groups of pastoralists occupied the area, never inhabiting the same site for long, and possibly only on a seasonal basis. All parts of the valley landscape seem to have been exploited in some way, but gravel islands on the floodplain were particularly favoured foci of activity. Grazed clearings can be evidenced at least on the floodplain and may have been quite large in size; however they existed within a largely wooded landscape, the resources of which were exploited for plant foods.

Acknowledgements

I am extremely grateful to my colleagues, particularly Philippa

Bradley and Alistair Barclay of the Oxford Archaeological Unit and Mark Robinson of the University Museum, Oxford, for their time and help in discussing preliminary results and their implications with me. I would also like to acknowledge the advice and encouragement provided by Frances Healy, Richard Bradley and George Lambrick. Thanks are due to Chris Bell, who has supervised much of the fieldwork, and the members of the Oxford Archaeological Unit who have toiled on the excavation sites.

English Heritage have generously funded the archaeological fieldwork and their staff have provided considerable technical support. ARC have provided machinery and they and the landowner, Mr Guy Pharoan, have given much practical assistance.

Different Realities: the Neolithic in the Northumberland Cheviots

Peter Topping

'Every inch of ground, all vegetation and the fauna on it are considered sacred. There are no places that are holier than others. There are so many stories that go with the land that it would take more than twenty years to tell them/ (Mamie Salt, December 1987. Quoted in Kelley and Francis 1994, 28).

SUMMARY

This paper aims to explore some general trends in the articulation of the landscape in the Northumberland Cheviots during the Neolithic period. The potential of ethnographic evidence is used to cast some light on contemporary perceptions of the landscape, how communities interacted with their environment, and perhaps infer some evidence of landscape symbolism.

THE BACKGROUND

At the beginning of the Neolithic period when forest cover was at its maximum extent, the Cheviots were a rolling landscape dominated by darkness and green twilight. However, processes of soil erosion were active and any natural gaps in the woodland canopy would have been affected by the higher than average rainfall (Taylor 1975,11), initiating gradual podzolisation and degeneration of the original forest brown-earth soils. Importantly, such processes may have destabilised nearby trees which would have become increasingly susceptible to wind throw (particularly birches due to shallow roots) and thus helped to establish or perpetuate natural clearings, some of which might have been created or maintained artificially by the earlier Mesolithic groups (cf Innes and Shennan 1991; Simmons 1996). The Cheviot summit ridges would have been characterised by birch/ hazel woodland at c7000–6000 cal BP, contrasting with the valley floors which may have been comparatively open (Tipping 1996, 27).

Perhaps other clearings were created by altitude combined with environmental factors, giving certain hilltops a bare, stark visual prominence. In this type of scenario it might not be inappropriate to envisage the summit of The Cheviot as a wide, brooding treeless massif emerging through a tree-covered horizon, this prominence enhanced by the fact that The Cheviot is one of the highest peaks in England. Consequently during the Neolithic period the wooded Cheviots may have appeared like an 'archipelago' of scattered clearings.

Within this landscape setting direct archaeological evidence for Neolithic land-use is limited, probably through the far-reaching effects of agricultural intensification in later periods of prehistory and the Middle Ages (cf Tipping 1992; Mercer and Tipping 1994). Some of the clearest information available at present is derived from palynology, which is demonstrating that at least parts of the Cheviots were exploited in the Neolithic period, but that this was erratic suggesting sporadic shifting land-use (Mercer and Tipping 1994, 18). An informative example of this can be seen at Yetholm Loch in the Scottish Borders where paleo-environmental analysis has recorded cereals, contrasting with evidence of low intensity grazing in further clearings in the upper Bowmont Valley (Tipping 1996 and pers comm). This implies a distinct zoning of activities, the lower parts of certain valleys being given over to small-scale cereal cultivation, whereas the headwaters and more intractable areas being used for grazing. Allowing for the uncertainty of how closely contemporary these episodes were, it might be possible to infer that the economy was based upon mixed farming practices which may have been cyclical and/or seasonal in nature.

During this period we may imagine a less established form of cultivation practised by relatively mobile small groups dispersed across the hills, who had little need to define or permanently enclose their fields. These groups were forest farmers, opportunists who had to take advantage of whatever could be won from within the gaps in the forest canopy, whether through cereal cultivation or the exploitation of wild resources. Mobility may have been partly stimulated by soil degeneration within the clearings or the seasonal availability of wild plants and animals, forcing groups to traverse the landscape in search of more productive locations. Grazing could return nutrients, or virgin clearings become available, thus options such as the cyclical use of clearings could have been adopted to conserve existing resources and make the best use of new resources. Considering that birch and hazel are probably the two most productive trees in terms of nuts, bark,

wattle and sap, the economic potential of the 'resource zone' of the clearings could have been substantial.

By the late Neolithic, it seems likely that land-use had intensified. One significant recent archaeological discovery made in 1996 during the author's on-going excavations, is a decorated sherd of Peterborough Ware found within what appears to be an Iron Age plough-soil on the summit of Wether Hill overlooking the Ingram Valley. The findspot was some 30m to the north of a small cairn, and the sherd is decorated in the local 'Ford' style (see [Figure 11.1](#); the author is very grateful to Alex Gibson for this identification). This sherd may be important considering that most later Neolithic impressed pottery is recovered from domestic sites and only rarely from sepulchral contexts (Gibson 1986, 23), thus it might represent a residual deposit disturbed from an as yet unexcavated Neolithic site located beneath the Iron Age horizon. A modest flint assemblage was also recovered of types which would not be out of place in a late Neolithic/Early Bronze Age context. Taken together these strands of evidence are beginning to demonstrate that the Cheviots were not simply set aside for ritual or ceremonial purposes, they were farmed and lived in.

Traditionally the Cheviot valleys have been devoid of Neolithic axe finds; however, the recent discovery of an axe lying beneath gravel deposits of late prehistoric date at Powburn at the mouth of the Ingram Valley suggests that this may have been a false impression (Tipping 1992 and pers comm). This situation in the Cheviots contrasts markedly with the distribution of the large numbers of axes previously found on the lower lying slopes of the Fell Sandstones at altitudes of 120m to 150m OD ([Figure 11.2](#); cf Burgess et al, 1981, 9; Cummings and Harding 1988). From this it has normally been inferred that the exploitation of the Cheviot valleys was limited, but the discovery of the Powburn axe suggests that much more information relating to Neolithic land-use remains buried beneath some present valley floors.



Figure 11.1: The sherd of Peterborough Ware from Wether Hill shown alongside the Ford bowl

The ceremonial monuments represent perhaps the most tangible evidence of Neolithic activity. In the Northumberland Cheviots lie the remains of two stone circles of large diameter which would appear to be of a broadly late Neolithic context (cf Burl 1976, 49–50); they are situated in some isolation on the valley floors at Hethpool and Threestoneburn –in contrast to the large number of henges clustered together on the low-lying Milfield Plain (cf Harding 1981). The Neolithic stone circles were constructed in steep-sided valleys which formed a natural amphitheatre surrounding each site in a manner similar to the artificial banks enclosing the stone settings of henge monuments such as Mayburgh in Cumbria (cf Topping 1992). There could have been a variety of reasons for the choice of such locations, including the range of local viewpoints, limitations of access, or indeed the symbolism of the valleys in which the circles were located.

The circle at Hethpool ([Figure 11.3](#)) may originally have been two adjacent circles or a single with outlier(s). The site was built upon a broad river terrace at the mouth of the College Valley, and lies surrounded by steep hillslopes (cf Topping 1981b). It has been noted recently that the scale of the monument at Hethpool could suggest that it might originally have been one of the largest rings in north Britain (Burl 1995, 71), which if so may have given the site an even deeper symbolic resonance. At Three stoneburn the stone circle is situated at the confluence of two streams at the head of a valley, which descends to the east past Dod Hill and the site of a small long cairn (Gates 1982). A journey up the valley of the Threestoneburn towards the circle would have had the massive bulk of the Cheviot on the horizon for most of the route, even allowing for the forest periodically inhibiting the view. The presence of the Dod Hill long cairn may have enhanced the importance of this locality.

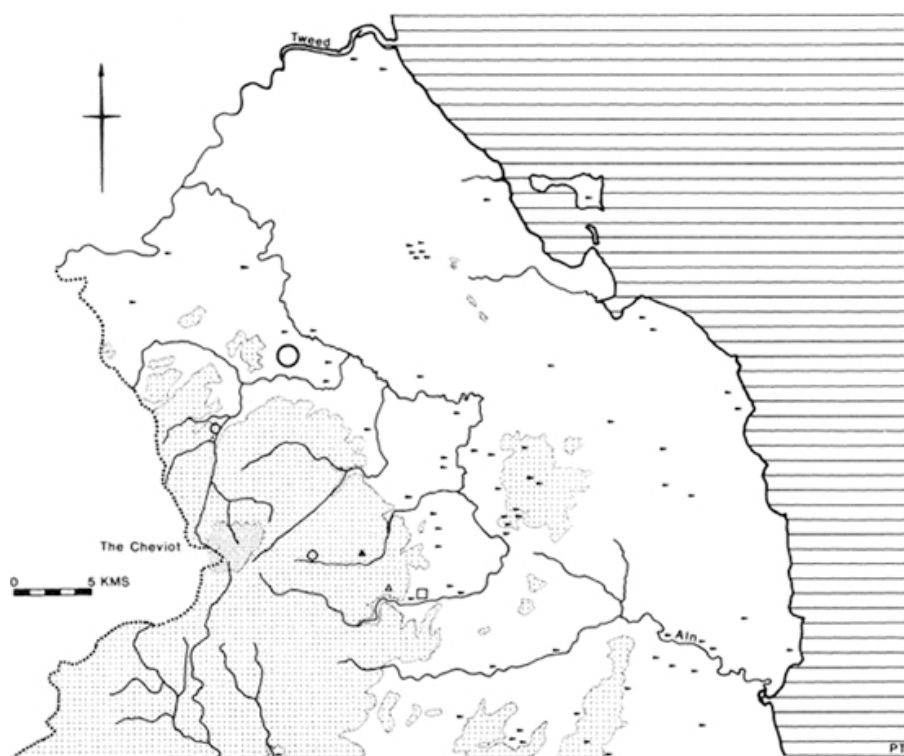


Figure 11.2: The Northumberland Cheviots during the Neolithic period. Circles represent stone circles; the large circle the Milfield henge complex; triangles, long cairns (filled = present; outline = possible); square, the Powburn boulder; small axe shapes, stone axe finds

The recent discovery of a sandstone boulder decorated with cup-and-ring markings and buried beneath colluvial gravel deposits some 3m in depth in the same quarry at Powburn as the previously mentioned stone axe (Frodsham & Rushton 1994, Frodsham pers comm), reinforces the impression that some present day valley floors mask the landscapes of the Neolithic and earlier periods (cf Tipping 1992). The Powburn boulder is too large to have been a 'portable' stone, although it would have had to be dragged for a distance of perhaps a kilometre or more. The size of the stone, together with its location at the mouth of a valley offers the possibility that it could have been part of a stone circle, although this may be unlikely as few Northumbrian circles feature rock art other than the smaller Bronze Age four posters such as the Goatstones to the south of the Cheviots (cf Burl 1971).

The Cheviot valley sides retain little recognizable evidence of Neolithic activity. An antiquarian reference to the excavation of a cairn on Ewe Hill on the north side of the Breamish Gorge by the Berwickshire Naturalist's Club in the early 1860's (Tate 1862, 304) described what may have been a Neolithic long cairn. A small long

cairn has been discovered on the south-facing slopes of Dod Hill near the Threestoneburn stone circle (Gates 1982), perhaps providing some evidence for a later Neolithic ‘ritual’ focus in this part of the hills.

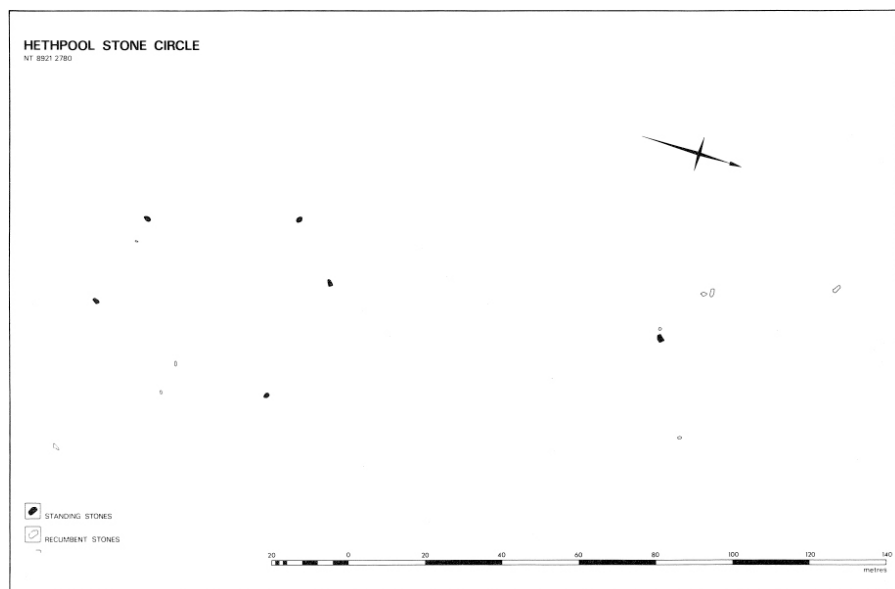


Figure 11.3: Hethpool stone circle, College Valley

Halliday (1993, 68) has pointed to morphological similarities between Neolithic settlements and field systems in Shetland and sites scattered throughout much of the Scottish Highland Zone, suggesting that Neolithic settlements could exist but remain unrecognised. In the Northumberland Cheviots there are a great many such sites, very few of which have been scientifically dated, and currently assigned to a Bronze Age horizon on morphological grounds. For example sites such as Chesters Burn (NT9975 1475), Tathey Craggs (Jobey 1972, 78), or Langlee Craggs (Gates 1983, 137), feature hut-circles scattered amongst enclosures and cairnfields in a way not dissimilar to Scord of Brouster in Shetland (Whittle et al 1986, 3). It is not inconceivable that some of these settlements may be of late Neolithic origin, and possibly contemporary with the stone circles.

DISCUSSION

One of the major questions to address is that of how land-use patterns related to contemporary beliefs and perceptions, and what levels of meaning were invested in the landscape. It is clear from ethnography that many non-industrialised communities have a holistic view of the land. Landscape is perceived as sacred, and communities are generally

inter-related with the land through dependencies and mythico-religious beliefs. The interaction of people with the soil, precipitation, air, light and fire creates the food from the land which in turn feeds the people. Such a close relationship can lead to belief systems which reinforce these ties and evoke sacred links between communities and landscape features, plants and animals, the atmosphere and celestial events. Many activities become focused upon sacred or special places associated with power and stories which are periodically visited to reinforce beliefs and lifeways. Thus all the communities, the land, and the entire biomass are often regarded as component parts of one massive living organism. The range of symbolic landscape features is infinite and can include mountains, hills, rocks, springs, natural discolourations/features on rocks or crags, certain specialised habitats, mineral deposits, isolated trees, and earlier man-made structures such as cairns or the ruins of settlements. North American ethnography has recorded that sacred places are most potent where the four elements – water, air, light and the earth – all come into conjunction, particularly at springs or confluences (eg Kelley and Francis 1994, 38–9).

Landscape, however, is rarely perceived on only one level. The land can often form a link between people and their past, and the landscape becomes one part of the text amongst the repertoire of stories and material culture. Stories can be used to legitimise claims to territories or traditional land-use patterns through incorporating landscape referents into the accounts. Similarly stories can also operate as oral maps, learnt to guide people over the land by the recognition of certain landmarks which often have mythological or ancestral links (eg Berndt 1972).

If it is accepted that a symbolic perception of the landscape may have underpinned much of the land-use patterns and direct relations between man and the land in the Neolithic, then what if any of this less than tangible level of evidence can be recovered? Allowing for the range of potential landscape referents which may have been utilised, one avenue of investigation may be a review of the locational preferences of the various sites referred to above to determine whether a pattern exists (cf. [Fig 11.2](#)). Obviously this may only provide a generalisation of part of the original symbolic value implicit in the distributions of sites and artefacts in the Neolithic customary landscapes of the Cheviots.

Perhaps the most significant pattern can be seen amongst the stone circles. Considering that the Cheviots were a largely forested environment, the circles lying in their clearings or on the more open valley floors might have appeared relatively bright refuges in a

landscape dominated by a dark woodland canopy. In addition ethnography records that the circle, figuratively depicted or monumentally constructed, can be symbolically-laden with implicit references linking into belief systems (cf Brown 1971). Thus stone circles could have formed not only a direct 'sign' on the landscape but also a social reference point designed to stimulate responses on several levels.

The topographic settings of the stone circles may reflect the adoption or referencing of significant landscape features. At Hethpool the ring sits on a flat river terrace at the mouth of a relatively steep-sided valley, with the College Burn flowing immediately to its east. The view south up the valley is dominated by The Cheviot, framed by the valley sides. Many streams join the College Burn during its course down the valley, including one directly opposite the stone circle. The location of Hethpool stone circle can thus be seen to stand at the conjunction of many potential landscape referents, particularly the College Burn which springs from the flanks of The Cheviot at 790m above OD, and descends through the antediluvian crags of Hen Hole which forms a rugged natural amphitheatre framing the burn. It may be no coincidence that the elemental forces of air, land, water and light all come into conjunction at this ring.

Similar features can be found at Threestoneburn. Here the ring is situated at the confluence of two streams, is overlooked by the summit some 0.5kms to the north-west of Tathey Crags, and the greater eminence of Hedgehope Hill to the west-south-west, these two hills framing The Cheviot which lies due west of the circle. Threestoneburn again sees the occurrence of four elements in direct conjunction.

The previously mentioned long cairn on Dod Hill, lying roughly 1km to the east of the Threestoneburn circle, is of some interest in itself and may have added to the importance of the general location. The cairn is in a prominent location as seen from the main route to the circle, and has been constructed to lie across the contours with its broad terminal aligned upon the summit of Dod Hill. It is visible on the horizon for part of the journey to the stone circle. This suggests that it may have been deliberately focused upon the hill top, possibly producing a link between the symbolism of the topography with the remains of the ancestors.

The decorated boulder discovered in the quarry at Powburn would have been close to the meandering course of the River Breamish as it spills out from the Ingram valley. The Ingram Valley has an east-west alignment which in itself may have been significant allowing the mouth of the valley to open to the east and sunrise. However what

may have been a more significant aspect to the choice of this valley location for the positioning of the boulder might lie in the fact that the River Breamish springs from the southern flanks of The Cheviot at Breamish Head, thus providing once again a direct relationship between an anthropogenic feature and this hill. It is almost unnecessary to restate that the four elemental forces are brought together again at this location.

The geographical distribution of these two circles and the Powburn boulder have several common features. Not only do they all have similar locational preferences and associations with landmarks, but perhaps more pointedly they also appear to have a spatial relationship focused upon The Cheviot. Hethpool circle may have acted as a marker to the entrance to the College Valley, which is a major route to The Cheviot itself, a whale-backed massif which not only physically and visually dominates this valley but also much of the horizon of the Northumberland Cheviots. Although The Cheviot does not have an unusual or distinguished summit, it should be borne in mind that it is conspicuously the highest point on the Border watershed. This dominance could have given The Cheviot a symbolic value through the sheer scale of its presence and being the highest point in the range. The role of Hethpool stone circle may have been to flag one of the major routes to The Cheviot, and ritualize access to this hill from the comparatively low-lying Fell Sandstones and coastal plain.

In a similar vein, the decorated boulder at Powburn may have acted as a route marker to The Cheviot. This boulder may have gained significance from the fact that it was an isolated rock at the entrance to the Breamish Valley, its value lying not only in its decoration but also in the fact it was sandstone in an area of predominantly volcanic lavas; this could have added to its prominence and visual impact.

A second form of locational relationship may be evident at the ring at Threestoneburn which may have focused attention upon The Cheviot through viewing it from a relatively short distance (6kms), perhaps in relation to specific celestial events such as sunset over its summit and northern flanks.

These observations suggest that it is no coincidence that the three sites appear to have a direct visual and spatial relationship to The Cheviot. If this is correct, then it implies that the focus of this distribution, The Cheviot itself, must have had a symbolic importance to contemporary communities. Ethnography records the role prominent mountains can play across a range of differing levels of perception (cf Ortiz 1969; Kelley and Francis 1994). Mountains can be utilised as territorial markers, refuges in times of stress, sources of raw

materials for ceremonies, sites for ritual offerings, locations for shrines, and as landmarks featuring in mythologies (homes of the gods, origin myths) and stories (historical, land tenure etc). These oral traditions strengthen social ties and bond the human world to that of the immortals/ancestors. The archaeological record has similarly noted the use of mountain summits around the world as locations for shrines, offerings and significant burials from a variety of cultures such as the Minoan and Incan.

Ethnography has also recorded that some sacred places are chosen because of their interaction with natural forces. Mountain tops not only play the various roles listed above, but significantly are where the dawn's rays first strike, and where the rain clouds gather. Thus mountain tops are favoured for prayers and activities designed to benefit the surrounding countryside or focus upon celestial events.

CONCLUSION

The observations and interpretations presented above have attempted to contextualise the scant Neolithic evidence into what must have been perceived as a living and vibrant landscape heavily imbued with a dense structure of cultural symbols, images and beliefs. Although much of the detail of this symbolism is beyond the reach of archaeology, certain patterns do emerge which suggest some general themes inherent in the distribution of the artefacts and ecofacts of the period.

Perhaps one of the strongest such themes is that of the role of the stone circles. It may have been the mobility of the Neolithic groups which prompted the construction of these communal monuments as social focal points. The circles might have been an expression of relative permanence in an otherwise transient life-style, a place for seasonal meetings to reaffirm beliefs and a shared identity. Equinoctial or astrological events documented by the circles might have prompted these meetings, allowing groups to know when to arrive at the sites. The fact that both stone circles and the Powburn boulder are located in valleys which may have been relatively open areas could imply a focus upon routes through the forest canopy. Ultimately these paths led to The Cheviot, or to a significant viewpoint from which it could be seen. The pivotal role of The Cheviot as the prominently visible high point of the range, and the watershed of several major valleys, may have imbued the hill with a deep symbolic value. It is possible, considering the documented ethnography relating to the significance of certain mountains to some communities, that it became not only a symbolic focal point for

pilgrimage, but perhaps also a theatre and setting for ritual events which brought the groups closer to their deities or ancestors (Figure 11.4).

Possibly the most important point of all to reiterate is the implication of recent discoveries which suggest that Neolithic communities do appear to have lived and farmed in the Cheviots.

Following the Neolithic period, Bronze Age communities undertook a much more systematic colonisation of the Cheviots as demonstrated by both palynology and the settlement record (see Topping forthcoming). This prompted a shift in emphasis to more localised landscape symbolism associated with the location of burial cairns on conspicuous summits, and the division of land on prominent ridges or hill slopes. There are no major ritual or ceremonial monuments assignable to the Bronze Age in these hills, and perhaps we should expect the Neolithic stone circles and the Milfield henges to have retained a continuing local significance, at least until the end of the Early Bronze Age (cf Harding 1981, 132).

In the Iron Age the settlement record further intensifies, and there was a gradual move to lower altitudes as more land was cleared, and the upper hillslopes comprising the Bronze Age landscapes were largely abandoned as arable. In this later period it is no longer clear what role contemporary perceptions may have played in the articulation of the landscape beyond a gradual retreat from the higher slopes, the building of a series of prominent hillforts, an evident desire to create larger settlement complexes, and a greater degree of territoriality evident in the use of boundary markers and cross-ridge dykes. However, what is apparent is the visual referencing of both the College and Breamish Valleys by the builders of the forts, two of the valleys which figured prominently in the landscape symbolism of the Neolithic period.

NEOLITHIC



BRONZE AGE



IRON AGE



KEY



Landscape / monument foci



Stone circle



Cairns



Bronze age settlements (presence = black;
former position = outline)



Hillforts

Figure 11.4: The changing perception of the landscape in the Cheviots

Acknowledgements

This paper has evolved from an earlier review of prehistoric land-use patterns in the Cheviots written in 1993 for a festschrift for Chris Taylor (to be published by Oxbow); the present paper expands some of the ideas presented therein, and develops others.

Many people have helped shape the ideas contained in these pages, in particular A1 Oswald and Dave McOmish. Both Colin Burgess and Richard Tipping have also had a substantial influence. Trevor Pearson

drew the Peterborough Ware sherd and assisted with the other illustrations. To all goes the writer's grateful thanks. As ever, the errors or misrepresentations are the responsibility of the author.

Domestic settlement and the landscape during the Neolithic of the Tavoliere, S. E. Italy

Keri Brown

INTRODUCTION

The opposite to ‘ritual’ landscape may be termed ‘domestic’ landscape, a landscape in which the emphasis seems to be not on monuments and sacred enclosures but on settlement, land division and use of resources. A domestic landscape can also be said to be a domesticated landscape, where the wild resources relied upon in gathering and hunting strategies were replaced by domesticated plants and animals. Domestic landscapes may not have been as intensively studied as ritual landscapes, but they can still reveal as much information with regard to symbolic and ideological aspects of Neolithic society. How the landscape was used and how it was perceived by the inhabitants are questions that are closely entwined, and how people altered the landscape and how it placed constraints on human activity are similarly connected. The ‘landscape’ is no longer viewed by prehistorians as an inert, static matrix waiting to be moulded, manipulated and exploited by Neolithic farmers – it is a living entity participating in a programme of adaptation and change which may be initiated by humans or by environmental factors.

In this paper I wish to consider the interaction between humans and landscape by examining the Neolithic landscape of the Tavoliere in South East Italy. This is a landscape which is often briefly mentioned in grand surveys of European prehistory (eg. Whittle, 1985), but deserves to be better known. The Tavoliere is the largest plain south of the Po valley and today is an intensely agricultural region, the major producer of durum wheat, important in the manufacture of pasta. It is a distinct geographical unit, bounded by the Apennines to the west, the Adriatic sea to the east and defined by the River Ofanto to the south and the Gargano mountains to the north (see [Figure 12.1](#)). The land gently slopes down from the Apennine foothills to the

coast, in a series of marine terraces, the highest at 400m above sea level (Calabrian), then at 200–150m above sea level (Sicilian), at 100–50m above sea level (Milazzian 1), at 35–30m (Tirrenian), at 15–12m (Monastirian) and at 5–3m (Nizzanian or Versentinian), the last corresponding to the Flandrian transgression between 8,000 and 6,000 BP, and probably representing the Neolithic coastline and the formation of a coastal lagoon in the present-day estuary of the River Candelaro (Marcolongo and Palmieri, 1990–1). Most of the plain itself lies below 100m. The land surface appears fairly flat and featureless, but in fact there are many low mounds (coppas) and deeply cut river valleys. Underlying most of the plain is the ‘crosta’, a thick deposit of almost pure calcium carbonate derived from the precipitation of marine calcium carbonates in the geological past. The surface of the crosta is a thin, very hard layer impermeable to water; this overlies a softer, chalky material with a blocky structure. The lowest level of crosta is the softest, although containing nodules of a more resistant type. Several soil types are known from the Tavoliere and its periphery, but only two are considered important for agricultural purposes (Jarman et al, 1982, 63). These are the alluvial soils, a mixture of silts and clays which were deposited at different times in the past (including a pre-Neolithic and a post-Neolithic phase (Ciaranfi, 1983)); and the crosta soils, formed by a mixture of alluvial soils with the calcium carbonate subsoil. These soils are well drained and lighter than the alluvial ones. The alluvial soils are found in valley bottoms, and although fertile, they would have been too heavy to work with Neolithic technology. The crosta soils are found on the tops of ridges and on the coppas – it has been suggested that the presence of crosta soils influenced the location of prehistoric settlements (see below). Other soil types identified on the Tavoliere include small areas of rendzina soils found at the junction between the limestone slopes of the Gargano and the plain, and a thin layer of Terra Rossa on the limestone hills themselves. Thanks to the presence of the crosta subsoil, the discovery of a Neolithic landscape on the Tavoliere plain was made possible via aerial photography.

DISCOVERY OF THE SITES – AERIAL PHOTOGRAPHY AND THE TAVOLIERE

Aerial reconnaissance carried out by the RAF during 1943–45 revealed the presence of a remarkable concentration of ditched enclosures in the Tavoliere. Many of these sites were first published in J. Bradford’s three papers in *Antiquity* (1946, 1949 and 1950), but unfortunately the momentum of research was lost due to Bradford’s later illness. It

was not until 1987 that a catalogue of the sites located on the RAF verticals were published (Jones, 1987) giving details of some 260 Neolithic sites. Meanwhile in 1975 a paper was published by an Italian archaeologist claiming that the number of prehistoric sites located by aerial photography on the plain was 1028! (Odetti, 1975). Unfortunately the author gave neither map grid references nor descriptions of these sites, making it impossible for other scholars to check these sites on the ground. The aerial survey which furnished the evidence for this claim was the Volo Base dell'I.G.M. which was taken in 1995 for mapping purposes at a scale for 1:35,000. this survey completely covered the Tavoliere region but at a very small scale of archaeological investigation. In 1991 I examined this archive for myself and was able to identify just over 500 definite ditched enclosures, locate them on the 1:25,000 maps of the region and briefly describe the sites (ie. size, number of enclosure ditches).

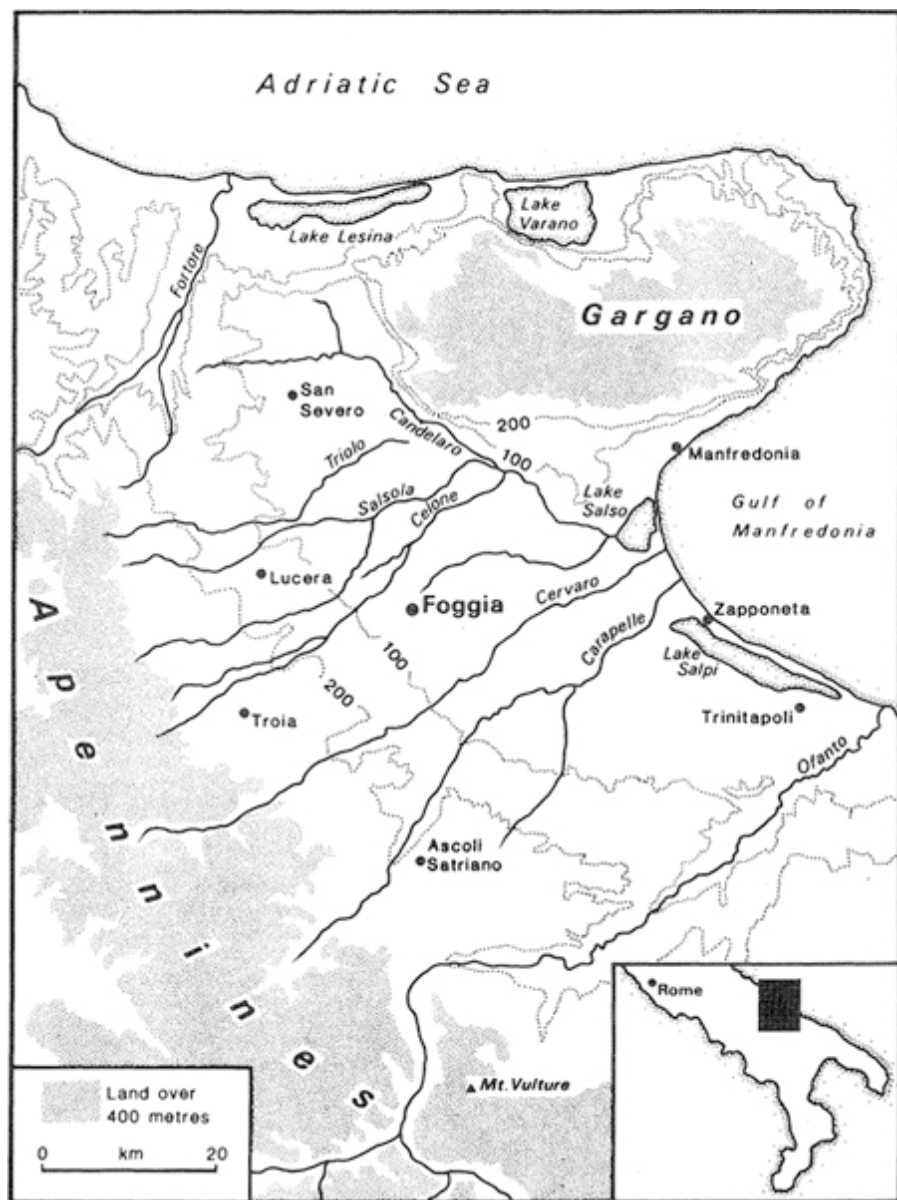


Figure 12.1: Location and relief map of the Tavoliere (from Delano Smith, 1987)

Although the number of Neolithic sites on the Tavoliere is still an unknown quantity (more than 500, less than 1000), the fact that the total area of the plain is estimated at c. 6000sq km means that this is perhaps the densest concentration of settlement sites known in Europe (Figure 12.2). The sites were discovered as crop marks. The enclosure ditches and the smaller, crescent-shaped ditches within them had been cut into the crosta sub-soil. As these deeper features filled up with more organic soils, the difference in soils was reflected in the

variation in growth seen in cereals grown over the plain, the crops over the ditches ripening later than the rest of the field due to the retention of moisture in the more organic ditch fill. Sites have also been located through surface survey (Cassano and Manfredini, 1983; Tiné, 1983), and many surface finds have been found to coincide with ditch enclosures seen on APs. More recent air surveys were carried out by the late Derrick Riley in 1987 and 1989 – these also turned up a few more new sites (Riley 1992). The introduction of modern agricultural techniques, especially that of deep ploughing to break up the crosta subsoil (of dubious agricultural value) means that the 1943–45 air photographic cover taken by the RAF is of immense value to archaeologists, as this shows the sites with the greatest clarity of detail. The later aerial surveys show just how much has been lost, except for the deepest ditches and pits. The surface of the crosta subsoil is only about 50cm or less in depth from the surface of the topsoil, and it is on or just above the crosta that the archaeological deposits lie. The gigantic deep ploughing machines can turn over 1m of soil, thus destroying any archaeological features present. The destruction of the subsoil accounts for the fact that so little is known about the internal organisation of the sites (Whitehouse, 1986).

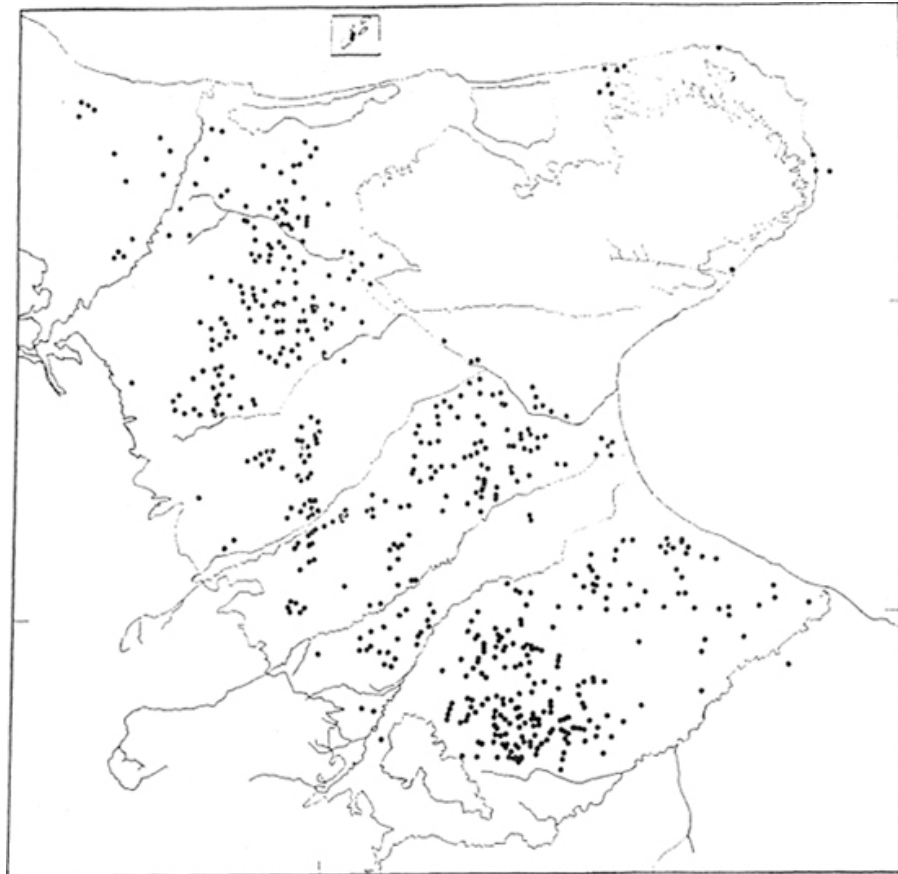


Figure 12.2: Distribution of Neolithic sites in the Tavoliere

NEOLITHIC SETTLEMENT SITES

The ditched enclosures of the Tavoliere have always been assumed to represent settlement sites rather than any other kind of site, such as ritual enclosures. Field survey and excavations at a limited number of sites has uncovered pottery (both impressed and painted wares, coarsewares and finewares), flint, obsidian, daub, animal bones (mainly of domesticates), plant remains (especially of cereals), pits, but only traces of hut structures. A very few burials are known from these sites (Whitehouse, 1984) but no funerary monuments or ritual monuments are known on the Tavoliere itself. This evidence strongly supports the domestic role of the enclosures. The sites themselves have been described in detail elsewhere (Jones, 1987, Brown, 1991a and 1991b), so only a brief account will be given here.

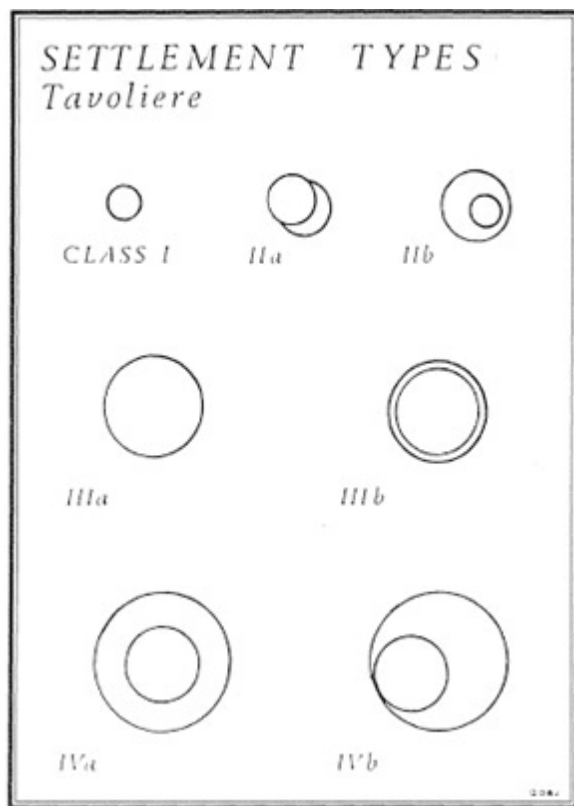


Figure 12.3: Classification of settlement type (from Jones, 1987)

The settlement sites vary in size from 0.2ha up to large Villages', but the majority of sites are less than 7ha in area (94%). A simple classification of sites based on area and morphology has been devised (Figure 12.3; see Jones, 1987. 178ff):

Class 1 – very small, with single or multiple ditches, usually circular sites, less than 4ha in area.

Class II – more complex enclosure ditches, sometimes with internal C-shaped ditches (called hut-compounds by Bradford), 4–7ha in area.

Class III – large, single or multiple enclosure ditches, often filled with C-ditches, 7–16ha in area.

Class IV – extremely large sites with concentric ditches and/or outer enclosures, may be filled with C-ditches or apparently empty of internal features; up to 28ha in area (inner enclosure of Passo di Covo-with outer enclosure a total of 172ha).

The chronology of the Neolithic of the Tavoliere is not as detailed as one could wish, relying as it does on pottery typologies (see Tiné's scheme for a 'classical' typology-based chronology for the Tavoliere (1983)). Recent radiocarbon dating has shown that several styles thought to belong to different periods were in fact in use over one

long period (Whitehouse, 1994, 89). However, until these problems are resolved, a chronology for the Neolithic of the Tavoliere can be devised as follows. The beginning of the Neolithic in the Tavoliere may have been as early as 6500 BC – a fully ‘developed’ Neolithic economy is seen at Coppa Nevigata and radiocarbon dates from this site calibrate to the early 6th millennium BC (Whitehouse, 1994, 86). The Middle Neolithic sees the development of Impressed and painted wares and the appearance of the Class III and Class IV settlements, and lasts from 6000–5000 BC. The Late Neolithic sees the ‘abandonment’ of the Tavoliere at about 4800 BC, while Serra d’Alto Wares, taken to be an indicator of the Late Neolithic, actually was in use from 5000–4000 BC. The Final Neolithic (4000–3600 BC) is characterised by the appearance of Diana-Bellavista Wares, a little of which is found on the Tavoliere.

During the Early Neolithic, settlement in the Tavoliere consisted of Class I and II sites; these are also known as ‘homesteads’ (Bradford, 1957, 95). These are generally held to be the dwellings of single social groups, whether these consisted of family groups of some other form of social unit. These settlements were probably autonomous, acephalous and egalitarian in nature, to judge from their dispersed settlement pattern across the plain, the uniform material culture and the marked lack of social differentiation of individuals, as burials with grave goods or other special treatment would indicate. In fact, there is a lack of ritual activity in this period as implied by special places, buildings, burials and artefacts. The large ‘village’ sites, the Class III and IV settlements, appear in the Middle Neolithic, and were formed by a process of nucleation involving 8–12 Early Neolithic Class I and II sites ([Figure 12.4](#)) (Brown, 1991a). However, occupation at smaller enclosures also continued in the Middle Neolithic. Some burials occurred on Middle Neolithic settlements (see Brown, 1995 for details), and artifacts that may be connected with ritual activities also occur, such as figurines and pintaderas (clay stamps). The appearance of the large Class III and IV sites implies a significant change in Neolithic society at this time. Many features of Early Neolithic social organisation continued into the Middle Neolithic, as shown by the use of C-shaped ditches within the Class III and IV enclosures, suggesting a certain amount of autonomy amongst the social groupings within the settlements. However, various social strategies must have operated to prevent fissioning and the dispersal of groups back into the component Class I and II sites. In another paper I proposed that one such strategy might have involved the development of a religious authority to sanction the construction of the enclosure ditches that

define the boundaries of the large ‘villages’ (Brown, 1995). Access to trade and exchange networks may also have played a role in the location and construction of the Class III and IV sites – nearly all of these sites are located in the northern half of the Tavoliere (Figure 12.5), where exchange networks for various items, such as obsidian (from Lipari), stone axes and painted finewares (figulina), would intersect (Malone, 1985; O’Hare, 1990). They would also have been situated to take advantage of the sources of flint present in the Gargano hills immediately north of the plain (Di Lernia et al, 1990–91). There are no lithic sources in the Tavoliere itself. The Tavoliere is thought to have been a production centre for painted finewares which were used in prestige exchange networks in Southern Italy. Contacts between the Dalmatian coast and South East Italy also occurred and a trans-Adriatic zone of interaction has been hypothesised (Müller, 1988).



Figure 12.4: Distribution of Early Neolithic Class 1 and II sites around the Middle Neolithic site of Passo di Corvo

THE ENVIRONMENT IN THE NEOLITHIC

Environmental evidence from this period is still scarce –little work has been done on the local environment using the methods of pollen analysis or by examining palaeofaunal remains, due in part to a lack of suitable waterlogged deposits in the Tavoliere. The broad, global climatic patterns for this period are known, however, and these can act as a guide. The Neolithic period in the Tavoliere lasted from c. 6500 – 3000 BC. This period roughly coincides with the Atlantic conditions which prevailed from 6000 – 3000 BC (Lamb, 1977, 372–3). During these three millennia, global temperatures were an average of 2°C higher than today's. The Tavoliere lies in the rain-shadow area, protected by the Apennines from westerly rain-bearing winds. There is enough evidence to suggest, however, that the region received possibly a higher rainfall in the Neolithic than it receives today. There is evidence from archaeological sites that the water table was considerably higher then. The average depth of wells dug in the Neolithic sites was about 6m (Sargent, 1983, 226); today water must be pumped up from depths of 30–40m or more in the central section of the plain. Fresh-water clams from the Early Neolithic site of Ripa Tetta, a scarp-edge site overlooking the River Volgano, show that the river was then a perennial stream; today the Volgano is a seasonal stream (D. Evett, personal communication). The land surface has been cut by rivers and streams in the past, whose meanderings have left many palaeochannels visible in aerial photographs. The overall impression is of a climate as warm as today's but with more precipitation, making agriculture more reliable than in the present time. The Tavoliere was densely forested before the onset of agriculture, with either Mediterranean evergreen forest or possibly deciduous oak forest, as was present at this time in S. France (Whitehouse, 1992, 11). How fast and how far deforestation was carried out in the Neolithic is not yet known, but the usual after effects occurred; a high soil fertility to begin with, followed by increasing loss of fertility and soil exhaustion; soil erosion from slopes, increased silt load carried in streams and rivers, leading to down-cutting and valley formation (Delano Smith, 1983; 1987, 20). Another consequence of deforestation was the gradual hardening of the surface of the subsoil crosta; the crosta would have been much easier to excavate during the Neolithic with prehistoric tools.

LAND USE DURING THE NEOLITHIC

There are no signs of human activity known from the Mesolithic era in the Tavoliere; the Neolithic appears to spring into existence fully

formed. Palaeolithic and Mesolithic sites are known from the Gargano hills just north of the plain; however there is a gap in radiocarbon dates between the latest Palaeolithic/Mesolithic dates from Grotta Scaloria (8339–7740 cal BC) and that for the early Neolithic from (for example) Coppa Nevigata (5970–5566 cal BC). This lack of previous occupation of the landscape led some scholars to propose that the Neolithic in the Tavoliere was a true case of colonisation, supported by superficial similarities in pottery styles to those from Neolithic Greece (see, for example, Tiné, 1983). Although the domesticates were undoubtedly imported into Southern Italy, it is now thought that indigenous populations made significant contributions to the spread and establishment of the new subsistence strategy (Whitehouse, 1986, 42; 1987). However, if domesticated wheats were imported from Greece, then to a large extent they would already have been pre-adapted to the environmental conditions of the Tavoliere – climatic conditions were probably very similar to that of SE Europe. After deforestation and the consequent maximum fertility of the soils, the Neolithic may have become established as a viable way of subsistence remarkably quickly, able to support a rapidly increasing population. The Tavoliere, a large plain with light, easily worked soils, and its hundreds of settlement sites, is evidence of the success of the new agricultural technology. Mixed farming was practised by the Neolithic communities, with emmer and einkorn wheats, bread wheat, spelt, barley and legumes cultivated, and goat, sheep, cattle and pigs raised, with emphasis on the ovicaprids. There seems to have been little dependence on hunting to judge from the faunal remains from settlement sites – wild animals form less than 5% of the total count.

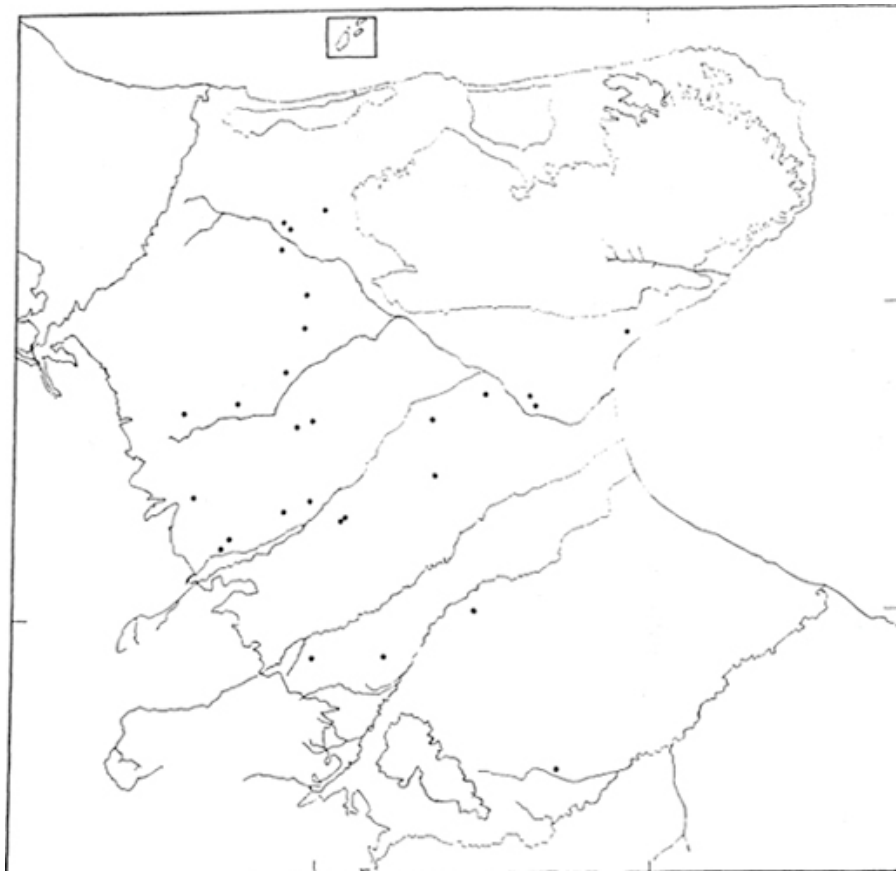


Figure 12.5: Distribution of Class III and IV sites in the Tavoliere, showing majority of sites north of the River Cervaro



One-hour exploitation territory of Passo di Corvo.

Figure 12.6: Example of site locational preference for crosta soils (from Jarman and Webley, 1975).

The method of site catchment analysis has been used by Jarman and Webley (1975) and more recently by Sargent (1983) to suggest that the Neolithic settlements of the Tavoliere display a locational preference for lighter, crosta soils (Jarman and Webley 1975) used a 5km/1hr radius to define the exploitation area around Neolithic sites on the amendola plateau in the northern Tavoliere. Although crosta soils only cover about 20% of the whole plain, they found that in their sample, 18 out of 20 sites were located on the crosta (Figure 12.6). Within the 5km/1hr exploration territory, 40% of the area was crosta on average, while within a 1km radius (the area that would have been the most heavily exploited by the settlement), the average for crosta soils was 65% of the area. Jarman and Webley made a further point regarding Neolithic site locational preferences in that sites are rarely

placed in the centre of large crosta soil areas, and are more likely to be found close to or at the junction of crosta and alluvium soils. This is reflected in the scarp-edge location of many Class I and II sites, perched above river valleys on the edge of crosta plateaux (Figure 12.7). Sargent's work confirms this preference for ecotonal locations, where sites are able to exploit two types of resources: agriculture on the crosta soils and the valley bottoms for summer forage for livestock. Sites near the edges of the coastal lagoons, marches or near the foothills of the Apennines would also have been able to exploit the resources of these ecotones. As Delano Smith (1987, 23) remarks, "...the sites of Neolithic settlements would have been favourable almost anywhere on the Tavoliere". These results are based on work carried out in just one part of the Tavoliere plain, but they do strongly suggest the importance of cereal agriculture in the Neolithic economy. Jarman and Webley carried out their analysis of the Tavoliere when little information was available on the Neolithic climate – they assumed that the long, hot, dry summers seen in the present day were also a feature of the prehistoric past. As in medieval times, they suggested that Neolithic farmers moved their livestock up into the Apennines for summer grazing. The numbers of animals kept in a Neolithic mixed farming economy are unlikely to have been large and it is probable that the Tavoliere enjoyed more rainfall at that time, so making transhumance unnecessary. Transhumance in the Tavoliere is in any case a later phenomenon of historical origins; that it occurred in prehistory has yet to be shown.

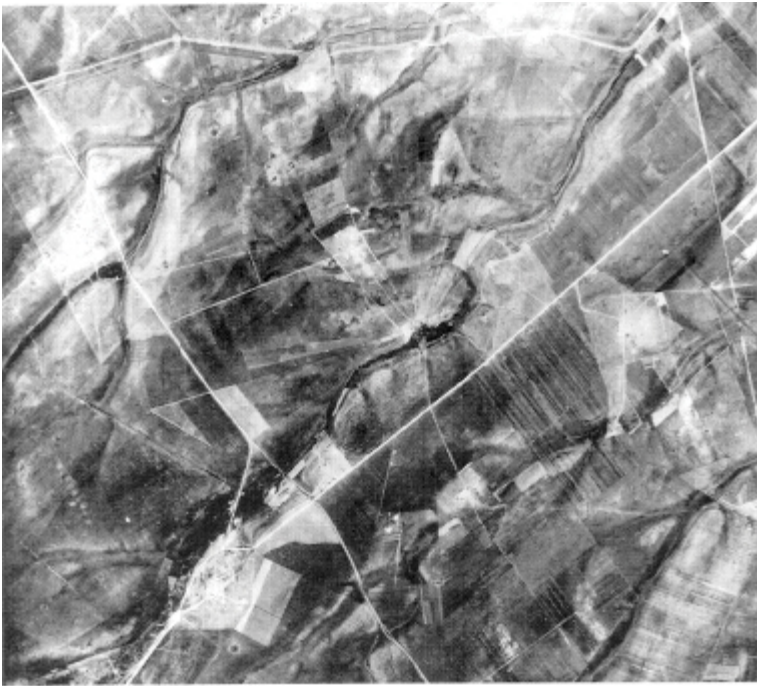


Figure 12.7: Scarp-edge location of Neolithic Class I and II sites at Fagnano da Piede (published with permission from the A erofototeca, Rome)

THE ABANDONMENT' OF THE TAVOLIERE

Like the origins in the Neolithic of the Tavoliere, this is a subject of conflicting theories and inadequate data. The idea that the Tavoliere was abandoned by Neolithic inhabitants and not occupied to a similar extent until the Daunian Iron Age is based on the scarcity of archaeological sites that can be dated to the Eneolithic (Copped Age) and Bronze Age periods. The large 'Village' settlements were abandoned at c. 4800 BC (Late Neolithic), and it seems that no new ditched enclosures were constructed after the Middle Neolithic. A Final Neolithic cist burial was found at Fontanarosa Uliveto, accompanied by three vessels of Diana-Bellavista type (Manfredini and Cassano, 1983), while seven other sites on the Amendola plateau have produced sherds of Eneolithic or Bronze Age wares (Quojani, 1983, 269). Finds of Eneolithic and Bronze Age sherds have also been made in the western half of the plain, especially around San Severo (Gravina, 1980). Coppa Nevigata developed into a large settlement fortified with thick stone walls with evidence of Mycenaean contacts during the Bronze Age (Cassano et al, 1987). Although settlement numbers were greatly reduced after the Middle Neolithic, the plain was not completely uninhabited. The reduction in site numbers at the

scale seen for the Amendola plateau (from about 90 Neolithic sites to 8 Eneolithic and Bronze Age) may not necessarily hold good for the rest of the plain. A number of factors need to be considered, such as the identification of diagnostic wares, and a probable change in settlement form to one that is invisible on aerial photographs. A genuine reduction in the total number of settlement sites can be accepted on environmental grounds, however.

The Tavoliere has always been regarded as 'marginal' for cereal-growing, and even today, one year in four may see a crop failure due to lack of spring rains (Sargent, 1983, 224). The region lies in a rain-shadow area, sheltered by the Apennines to the west and the Gargano to the north, although the Gargano particularly affects the eastern half of the plain. Just a slight change in climate would have a very great significance for the subsistence of Neolithic communities. A slight drying of the climate during the Middle to Late Neolithic would affect the eastern half of the plain (including the Amendola plateau) more severely than the western side, so making agriculture more difficult to sustain. The failure of the subsistence base in the eastern plain may have forced the population to migrate to the less affected western Apennine foothills. The eastern plain may have been used for seasonal pasture.

A combination of factors made the Tavoliere particularly attractive to the Neolithic farmers, a climate possessing the appropriate temperature and rainfall for cereals; light, easily worked soils with initially high fertility; access to water in the form of streams and rivers; and a seemingly unlimited amount of land for settlement. Human actions transformed the Tavoliere from an endless, empty forest to an intensely farmed and densely occupied landscape of domestic settlements. The act of deforestation began to alter this landscape significantly, as described above. The dense concentration of ditched enclosures in the Early Neolithic attest to the success of agriculture. The problem of soil exhaustion and poorer harvests may have occurred sooner rather than later, accounting for fewer settlements during the Middle Neolithic (but including the large 'Village' sites). During the Late Neolithic the problem of decreasing rainfall would have made the eastern half of the plain uninhabitable on a continuous basis, leading to a depopulation of the Tavoliere, but not a complete abandonment.

Much work remains to be done on the Tavoliere. The questions of the origins of the Neolithic in this region can only be answered with more research to locate the earliest sites, or even signs of Mesolithic activity. It has been suggested by Whitehouse that the coast and

possibly areas now below sea level would have been occupied by transitional Mesolithic/Neolithic groups (1986, 42). The destruction of sites by modern agricultural methods is particularly worrying. It is to be hoped that some sites may be preserved under post-Neolithic alluvial deposits of several metres depth. Although these sites would not then appear as cropmarks on aerial photographs, the possibility exists that they could be located via satellite. Shuttle Imaging Radar (SIR) can penetrate to a depth of 5m and gives better results with dry soils, thus making it ideal for identifying buried archaeological sites in the Tavoliere (James, 1995). The excavation of an undamaged Class I or II settlement site could yield much information as to subsistence, exchange, buildings and, through undisturbed artifact distributions, activity areas within the site, and much else besides. Environmental information needs to be obtained which would enable us to elucidate the precise climatic conditions prevailing at the appearance of the Class III and IV sites, and at their abandonment. The dramatic decrease in settlement sites in the Late Neolithic and Eneolithic needs to be set in a more detailed environmental context. Ditch fills have been investigated for environmental evidence in a few sites only (Marcolongo and Palmieri, 1900–91), but this work needs to be extended over a wider area of the Tavoliere.

The Neolithic experience of the Tavoliere is surprisingly relevant to the present-day situation. Today the plain is intensely farmed, the major crop being durum wheat. Soil fertility is only maintained with chemicals, while the water has to be pumped up from 30– 40m below the surface. The success of the harvest depends on the reliability of the spring rains. Rain may not fall in the Tavoliere for 5–6 months, resulting in the long, hot, dry summers for which the region is famed. The shortage of water has been circumvented by drawing on underground supplies, but in turn this means that water must be pumped up from even deeper sources. The Neolithic communities of the Tavoliere were only able to solve their environmental problems by migrating; how modern communities will cope with increasing water shortages in the face of global warming remains to be seen.

The origins of tells in Eastern Hungary

John Chapman

“our ability to evoke place and landscape is an essential pre-requisite to analysis but is not a substitute for analysis” (Gregory, 1994:83)

INTRODUCTION: TELLS IN EURASIAN PREHISTORY

The stratified mounds of settlement debris known by the Arab word ‘tell’ (cf. ‘tepe’ in Iranian, ‘hüyük’ in Turkish, ‘magoula’ in Greek, etc.) are characteristically found only in the Holocene period, as indicators of vastly increased sedentism in many countries stretching from India in the south east to Hungary in the north west. The occupation of tells in India, the Near East and Turkey has been so successful that the tell became the predominant form of settlement since the time of its first construction in the Pre-Pottery Neolithic period. The time-space distributions of tells in Europe has not witnessed the same success. Even in Greece and Bulgaria, tells were rarely the only form of settlement while, in other parts of Europe, tell occupation tended to be the exception to the rule of flat sites, whether nucleated or dispersed (Chapman 1989).

There is a long tradition, in European prehistory, of the use of tells as a marker of particular cultural traditions after the grand manner of Childean diffusion. In his writings about settlement patterns in the Balkans, V. Gordon Childe differentiated between those stable peasant farming villages forming tells and groups occupying flat sites, whose subsistence was based on shifting agriculture (Childe 1929: 1951: 1958; for an analysis of Childe’s changing views, see Chapman, in press a). In his third edition of ‘World Prehistory in new perspective’, Grahame Clark (1977) used the distribution of tells and painted pottery to characterize that area where cultural diffusion from Anatolia was clearly defined. More recently, Andrew Sherratt (1983(b)) has mapped the diffusion of tell-living communities by dating the emergence of tells north of the Danube. And Pál Raczky

(Raczky et al. 1995) has used a detailed analysis of the spread of tells North of the Körös rivers in eastern Hungary to document the diffusion of Late Neolithic communities complete with their distinctive economic and social package.

While each of these authors identifies various behavioural correlates with the spread of tell living, there is little doubt that they all treat tells as an equivalent to a special artifact type that can be spread by population movement or by cultural diffusion between communities. The use of tells as 'ethnic pawns' in a Childean game of cultural chess is both a limitation of the interpretative possibilities of the tell and also a serious reduction in cultural meaning. This diffusionist approach is curiously ironic in its emphasis on cultural traditions, since one of the key characteristics of the tell is its spatial delimitation of 'ancestral homes'.

In this chapter, I wish to present an alternative approach to the origins of tells in eastern and central Europe, which concentrates not on tells as representing something else (i.e., cultural diffusion) but rather focuses on tells as possessing meaning-in-themselves. This notion of meaning depends on the argument that tells represent long-term places which have accumulated some place-value over their period of occupation. Before the specific evidence of tells can be considered, a more general picture should be painted of the way in which human communities construct not only their own places in the landscape but also the landscape itself as a framework for meaningful action. My aim is the exploration of the varied ways in which communities perceive and thus create their own landscapes using the natural materials and socially defined constructs at hand.

THE CREATION OF PLACES

In a stimulating discussion of modernism and post-modernism, Derek Gregory identifies the crucial change in people's lives that took place after the First World War, which meant that the truth of daily experience no longer coincided with the place where it took place (Gregory 1994; see also Kern 1983). These early steps in the transition towards what is now termed 'globalisation' separates 'us' from 'them' in ways which we can, by definition, hardly experience. Before globalisation, most communities in small-scale societies lived locally, i.e., within a network of local people and places which they knew as insiders, a network connected to the outer world by kinship ties, their own long-distance specialists and by outsiders. In small-scale societies, localism is so pervasive that a generic term for 'place' is as unnecessary as it was unthinkable.

In his discussion of Pre-Columbian Amerindian place-names, Robinson (1989) has outlined a set of toponyms referring to 'kin-territories' which mean either 'people-places' or 'place-peoples'. Such toponyms record an interesting example of the interdependence of cultural form, social behaviour and place. Robinson goes on to argue (1989, 161,167) that people and places are actually hard to separate because the identity of a person is tied to that of their place. If a person's place is not known, how is it possible to know their ethnicity, their morality, their worth to the community? If this claim is perhaps extreme, even deterministic, the core of the idea is still important – the close relationship between the identity of people and that of their places. But identities cannot emerge through the reflection of the characteristics of places, rather through negotiation between individuals in those places. Gregory claims that it is an insight due to feminist geographers that places are the sites where identities and subjectivities are negotiated (Gregory 1994). In this process, different individuals come to claim varied meanings and values for the places which appear to be shared as common loci of activity. The process through which such varied claims come to be enunciated is grounded in the twin contexts of the past of such places and the wider spatial contexts in which the places are set (Massey 1994). For Massey, places do not have single, pre-given identities; rather, places are shared spaces, constructed out of juxtaposed, intersecting and articulating, but always multiple, social relations (Massey 1994, 276).

It is a leitmotif in the work of the cultural analyst Raymond Williams that the landscape expressed a deep sense of the past (Williams 1973:1984). There are two mutually reinforcing ways in which these pasts are brought into the present and used by coeval communities – materialization and rhetoric. For Williams, places were not just the sites of an event but "the materialization of a history which is often quite extensively retracted" (Williams 1979). Hence the form of past monuments conveys the sense of a witnessing to the deeds of the past from which the present cannot escape. But this testament remains mute until the places are incorporated into the discourses of their inhabitants, for their own purposes and often in strikingly different ways. Berdoulay (1989) has noted that places have a narrative level of their own, in which the meaning potential latent in the landscape is represented by individuals and groups for the purposes of communication. This means that the narratives of separate places are combined and re-combined in a larger narrative told and re-told by residents, neighbours and strangers; it is in the course of this larger narrative that the conflicting claims for the identities of places

and related people can be negotiated.

A more refined development of these processes of identity-formation has been presented by Rob Shields in his extended consideration of marginality as the major theme of western civilisation (Shields 1991). Shields begins by arguing that people use particular discourses about places as a mark of their own 'insider' status in the relevant communities. This has the implication that group affiliation is created through knowledge of discourses which locate places as particular types of places, in contrast to other peoples and places which can be defined as 'outsiders'. The notion that cultural knowledge is central to group affiliation is reinforced by the idea that the essential marker of a cultural activity is the process of place-identification; the naming of a place marks an insertion into a symbolic realm of a specific material space whose meaning can be discussed only in the context of that symbolic realm of discourse.

Shields' most valuable contribution is his three-level nested hierarchy of spatial identity: mythology, place-myth and place-image. At the highest level, a mythology of place identities is a type of group cosmology, comprising the overall system of relative similarities and differences between all known places. Here the uniqueness of places are set against their communalities in a relational system of overall significance. The communal mythology is formed by a set of place-myths. Place-myths represent the conflicting but often internally coherent visions of the identity of a particular place. It is often the case that different groups negotiate their own versions of a place-myth with other groups; it is also common that myths about a certain place can change with time. Such place-myths consist of a collective set of place-images. Place-images derive from face-to-face encounters with particular places and consist of discrete meanings associated with real places regardless of their character in reality. People who visit places commonly construct their images through one or more of three processes (Shields 1991, 47): over-simplification (or the reduction of the place to a single trait), stereotyping (or the amplification of a particular trait of the place), and labelling (or the deeming of a place to have a particular, or essential, nature). In this way, place-identities begin to be formed at the lowest level; they tend to be dominated by core images, often in the form of 'mental maps', which tend to remain embedded despite other changes.

These three levels of mythology, myth and image operate as 'insider' stories – as part of the symbolic construction of communal identities despite the polyvocality of the images existing at the individual level (Shields 1991, 262). Rather than denying collective

image-formation or consciousness, Shields opposes group myths and private behaviour, claiming that the tension between group myth and personal experience forms the basis for action. Shields' conclusion is similar to that of the Giddensian structurationists in rejecting an unbridgeable dichotomy between structure and action by locating both simultaneously at the individual and the group levels.

In recent papers, I have attempted to synthesize a schema for the creation of peopled landscapes through a movement from space to place to arenas of social power (Chapman 1988: 1991: 1992:1993:1994). The context of cultural change is the time-space framework of social action set within the contemporary social structure. The differentiation of a neutral physical space, not yet colonized by human communities, into a series of places associated with specific functions is coterminous with the emergence of place value and a narrative of peoples' pasts inscribed onto that landscape. As place values accrue, places become arenas of social power in which important and quotidian cultural activities are carried out by individuals and groups in pursuit of their own cultural and social goals (Chapman 1988: 1993: in press (b) and (c)). The definition and explanation of time-space sequences of arenas of social power (or ASPs) therefore constitute an important goal in prehistory.

My proposition is that significant places – sites and monuments – contain within them a core of what is most important for the social reproduction of the group, the mechanism through which they define their community's place in time and space, especially in relation to their past. Given that the strategies of social reproduction will be reflexively related to the form of the site or monument, it follows that changes in the form of sites and monuments should be related to changes in the underlying ideological strategy of the group. In circumstances where social change is possible, or desirable for part of the group, but in conflict with traditional group ideology, the question of how to renegotiate social reproduction is of particular significance. A familiar pattern of social reproduction concerns the use of opposition to a traditional mode in order to formulate and clarify new principles of social reproduction. In this way, a cycle of ideological strategies may be set up, based on the establishment of difference from the past, which constitutes itself through spatial strategies in relation to re-use of previous monuments, abandonment or continuity of occupation. These insights will be used to provide a framework for the understanding of the emergence of the nucleated settlements known as tells.

THE COMING-INTO-BEING OF TELLS AND THEIR COMMUNITIES

The first paradox to observe is that a tell cannot by definition begin life as a tell – its earliest incarnation is as a flat site, like other flat sites in its vicinity. There is a contrast to be made between a group who settles in a new place and a group choosing a previously occupied site: the first choice is negatively constrained by all previous occupation locations, whereas the second choice is positively constrained by those locations. This is a fundamental decision for all groups occupying settled land. Once this primary decision is taken, the secondary decision is the selection of a particular site for re-occupation.

The tells that we see in the lowland landscapes of central and eastern Europe stand out as visually distinctive, significant monuments which are of another time – the time of the ancestors, of the deep past. Their creation depended on two consistent decisions: to remain in the same place and to re-make their world from the physical fragments of a previous generation's dwellings. These processes required, above all, time – time for the mound to develop and grow, for the death of a settlement horizon and the re-creation of a new occupation, a cyclical process bridging the generations. But, once, these tells were not mounds at all but rather another kind of flat site, to be selected as a special place. Such places did not take on the visual characteristics of tells for some generations but remained *in statu nascendi*. The critical time is the period between the first re-occupation of a place and the physical manifestation of a mound – a period of generations, if not centuries. The phrase 'tell formation' is, I believe, inappropriate, for it carries implications of future action not present in the initial act. Such a denial of the contingent possibilities inherent in future action is, I believe, quite illegitimate.

There are, therefore, two questions framing the issue of the origins of tells: why did communities stay on the same sites at all? and why were particular places selected for this re-occupation? As we shall see, past time and the ancestors are deeply implicated in both questions.

The physical transformation of a tell-to-be into a tell depends upon two long-term physical concentrations – of people and house daub. The commitment to long-term association is part of the process of increased sedentism, recognised in the archaeological record by the construction of larger, more durable houses and the occupation of larger settlements (Tringham & Krstic 1991). The Neolithic settlement record indicates a positive relation between size of site and length of occupation (Chapman 1989). Greater sedentism is also associated with the formation of stable households as the main economic and social

units of co-operation.

It should be noted that staying in one place has often been associated with changes in subsistence strategies and the development of more complex farming practices, such as manuring and crop rotation. This was a tenet of Childe's differentiation between permanent tell settlements and flat sites based on shifting agriculture (Childe 1958) and the argument has been repeated later (e.g., Dennell 1978; Dennell & Webley 1975). However, adjacent flat sites in a site cluster are in practice exploiting similar territories as would be utilised by tell groups – the difference being that they are living in different but nearby places. Therefore, tell living does not necessarily and of itself indicate a more advanced form of agriculture. It is, however, likely that the stable households forming tell communities would develop longer-term patterns of land tenure or ownership than is normal on shorter-term flat sites. Such a development would also support the communal cohesion suggested by nucleated living on ancestral places. It should also not be forgotten that the location of tells and site clusters was confined to the most productive and fertile parts of the environment, generally speaking lowland valleys and the edges of old lakes.

The nucleation of people in households living close to one another is the first prerequisite of tell-becoming: it is unlikely that tells will develop on a large flat site where households live in dispersed structures (Chapman 1989)¹. Such living conditions have their own specific advantages and disadvantages, of the kind produced by constant, intense social interaction. It is by no means certain that many communities would accept the long-term disadvantages of increased friction and conflict over the pleasures of heightened social relationships (Chapman 1988: 1993). The generation of a set of communal constraints upon behaviour is one method of maintaining long-term social cohesion in such sites; perhaps this can be inferred from the architectural expressions of conformity to a group norm discovered in empirical analysis of tell housing (Chapman 1989: 1993). It is undoubtedly true that such long-term stability in the face of local conflict would have required social integration at the supra-household level. Perhaps the most likely reason for the acceptance of such constraints on individual and/or household behaviour is the centrality of ancestral places in the ideology of domestic communities (Chapman 1994).

The physical concentration of house daub derives from two main processes: the slow washing of mud from house walls by the rain and the more severe act of levelling the remains of destroyed or

abandoned structures. If the remains of only one house are levelled at a time (e.g., Tringham's claim for Opovo: Tringham et al. 1992, 382) or if rain-fed deposition is the main method of accumulation, then tell-formation would have been very slow. This may indeed have been the case in the early stages of the lives of tells-to-be. But new attitudes to daub would have been required to create the mounds which survive today, with their heights of several metres off the plain. The notion to be explored here is that daub from previous living structures is incorporated into the fabric of the new living surface as a physical way of grounding the community in ancestral values.

In both kinds of nucleation, the primacy of commitment to a communal rather than a household ideology is evident: the memory of the community of ancestors binds the living to a special place and these ties become more reticulated and complex through constant presence. In this way, the strength of the living community is related to the physical emergence of the tell-to-be as an ancestral place – a true mound. But the importance of such places is also linked to a higher-level network of other places and the total settlement area.

Thus, it is proposed here that communities stayed on the same sites long enough to initiate the formation of mounds because of the development of greater sedentism and because of ancestral relations with the places which they selected, ancestral relations which had effects on land tenure, nucleated site occupation and the use and modification of the social environment of house daub. Such practices reflexively demonstrate the emergence of cohesive, long-lasting communities and the emergence of tells-to-be. But why did these communities choose certain places rather than others? Three stages can be discerned in the process of the selection of places to settle: definition of the group's past, negotiation over the meaning of that past, and the decision itself.

Prior to the emergence of tells-to-be, we can envisage a network of settled places which were once occupied, abandoned and re-occupied. They were variously associated through a social network of ancestral traditions and historical narratives, each with its own place-values and myths. Küchler (1993) has used the notion of a 'mental map' in her discussion of the choice of settlement spaces in New Ireland. She finds that the locals used their picture of the location of old house sites, gardens and secondary forest as a pointer to the new sites to be occupied (1993, 96–7). These 'forgotten places', together with the record of their inhabitants, enabled the reconstitution of social relations across time through negotiation of their dominant meanings.

It is important to underline Massey's assertion that the identity of

these places is unfixed, since the past and its mythologies themselves are unfixed, constantly open to various interpretations (Massey 1994, 168). As different social groupings place varying weight on some places rather than others, the contrasting narratives are used as the basis for various kinds of social action – some competitive, some self-reinforcing. If the reasons for the selection of one place over another will usually elude archaeological investigation, it may yet be possible to outline some of the narratives which may have had a significant impact on individuals and groups. These accounts are, in Shields' term, 'insider stories' possession of this knowledge is a sign of membership of the group. One place may have cosmological significance, as a key location in an ancestor-myth or cosmological scheme. On a lower ritual level, another place may be the locale for ceremonies of particular significance. The death of a particularly significant individual at a certain place may provide yet a third place with distinctive associations with a past chief or big-man. Alternatively, a visit by a renowned long-distance specialist, replete with travellers' tales and exotic material culture, may give a fourth place a special flavour. Finally, this may also be achieved through celebrated subsistence successes, whether a run of bumper harvests, great hunting anecdotes or spectacular fishing expeditions. Different groups and sub-groups will emphasize one or more factors over others in the process of negotiation.

It seems highly improbable that a decision to select a site for a tell-to-be could have been made in a social context of division and competition over the interpretation of the 'forgotten places' of the settlement area in question. Instead, choice of a tell-to-be depends upon at least short-term social cohesion at the level of the acceptance of a past history of social relations and place-myths, in which the chosen place is embedded. The specific reason for this cohesion may well be impossible to discover through archaeological research but is nevertheless a concomitant of the process of the coming-into-being of tells. With unanimity, a group returns to a chosen place; in other circumstances, a majority moves to a well-known place whilst a minority of individuals moves off somewhere else. At other times, perhaps multiple splits lead to group fission and even out-migration of group members. Such fission can have an impact on at least two spatial scales – the within-cluster scale and the outside-cluster scale. Settlement choice means, literally, voting with your feet. In this sense, tells-to-be are inter-dependent upon communities-to-be in a social network of flux and instability.

Competing claims to place-value are the norm of social networks

and it may be that unanimous acceptance of the primacy of a single place is a comparatively rare event. But such an acceptance is, in itself, a major social decision, worthy of its own special place in the group mythology. This decision constitutes the formal recognition of a place as a timemark – the temporal equivalent of a landmark (Chapman, in press (d)) – not only incorporating the historical narratives of the place into a new version of the group mythology but also underlining the time at which the group decision was made. Recognition of a place as a timemark is a new step in place-formation – an important stage in the biography of a place as much as the creation of a set of new relations between this place and all other places within the settlement cluster and perhaps also special places in other clusters.

The process of group selection of a special place marks, *pari passu*, a new stage in terms of social integration, group formation and/or group consolidation. This process is a good example of Robinson's (1989) claim for the close identity of people and their places (or places and their people). Such a statement is also indicative of a social consensus in the present, a communal decision to stake out their history in a place that they wish to call their own. This decision marks, in Pred's (1986) terminology, the mobilisation of resources for the creation of a dominant institutional project. Whichever settlement is marked by this choice, the very fact that such a choice has been made at all may be construed as an act of social integration by a group sufficiently cohesive to be leaving material remains as their marker. Through this decision, the importance of place is coterminous with the importance of people, not in the sense of the 'central people' beloved of processualists in their hunt for low-level 'central places' but rather through a stable group possessed of sufficient communal resources to create a dominant institutional project that would enshrine long-lasting meaning for the group.

Hence, the selection of a place in preference to others refers to specifics of the places' mythology and myths which, though inaccessible to direct archaeological observation, do follow discernible principles. Differentiation of places already related in a network of narrative can lead to the occasionally unanimous decision amongst a group of the selection of a single special place. Once this place becomes a timemark in the settlement cluster, its place-value and place-myths dramatically change, offering an important social resource which can be activated in the future through continued site occupation or re-occupation. But it must be recalled that, at any time, good reasons can be produced for the abandonment of even a famous

place. The continued occupation of a special place is a matter for negotiation and consensus, despite (or could it be because of?) the weight of ancestral tradition. Once a tell mound emerges, there are different social conditions surrounding its later biography.

VISIBLE MOUNDS

The creation of tells is dependent on the passing of much structured social time, experienced cyclically as the return to the start of each new settlement occupation after the completion of a full cycle. By the time a 'tell' can be recognised as such, it is by definition a multi-occupational monument with a long history of its own. The notion to be explored here is that there is a social advantage to be gained from preference for the continued occupation of mounds in that the 'tell' community gains 'vertical dominance' over communities living on other flat sites. In this sense, the coming-into-being of tells does not represent the end-point of a process but rather the opening-out of a new phase in the landscape history of its settlement cluster.

'Vertical competition' is a direct implication of the selection of certain tells-to-be for re-occupation over other flat sites which remain abandoned or only rarely occupied. The competitive element is expressed physically, in terms of the sheer height of settlement remains which are incorporated into the mound (e.g., the average height of a Bulgarian Chalcolithic mound is over 5m: Todorova 1978). Measures of vertical height will clearly be considered in relative terms; while tells of 3m or 4m would presumably not be differentiated, tells of 12m would be deemed different from those of 6m or 3m height. In the world of established tells, monumental visibility marks the competition over the embodiment of ancestral place-values. There are two forms of competition in which tell communities participate: the competition between tell-occupants and the occupants of other, flat sites; the competition within different sub-groups of tell-occupants, each of whom may have different readings of their narrative tradition.

The mound – flat site distinctions express a vertical difference which may assume various ideological meanings. The most obvious is that the higher the mound, the longer the occupation and therefore the greater the ancestral time-depth to that site. This point may be underlined with reference to the living as much as to the dead, in terms of the longer traditions of the resident kin-group(s), the diversity of their social relations and the processes of group formation and expansion. There may also be a cosmological significance to the height of mounds, whether in terms of a distinction between the sky

and the earth, or a more general high –low dichotomy, or between mounds that are dry compared with surrounding land that is flooded. Whichever of these possible divergences in meaning is actualised, the tell-dwellers are at an ideological advantage over flat-site occupants, who may well need recourse to social relations with tell-dwellers for their own social reproduction.

The vertical dimension also contributes to the competition over contradictory or varying readings of group mythologies, place-myths and the place-values associated with individual tells. There is a contrast between the actual state of place-identities through time, unfixed, contested and multiple as they were, and the ideological strategy of defining special places in terms of their timeless past, an unchanging ancestral time which can be used for the purposes of social control by one group or sub-group (cf. Morphy 1993). A particularly critical time for tells is periods of temporary abandonment, after which new residents have the opportunity to redefine a historical narrative which provides support for their own position as pre-eminent in the local settlement cluster – a version of the invention of traditions (Hobsbawm and Ranger 1983).

It is also possible that the location of individuals and/or houses at the top of high tells will be seen to be significant and will also be able to see further than those living on flat sites. The aspect of viewing others and being viewed is perhaps more important than the potential for physical supervision of off-tell activities in the landscape opened up for tell-dwellers.

It is likely that the mound – flat site competition will overlap with, and/or be reinforced by, other forms of competition between limited interest groups (or 'LIGs', to use Taylor's helpful term: Taylor 1992). Such LIGs may well cross-cut tell and flat site residence, as well as forming only a partial correlation with kin groups, exchange partners, age-sets, gender-based groups and other activity groups (ritual associations, hunting parties, etc.). One of the implications of tell nucleation is the increased likelihood of the occurrence of many more such LIGs on tells than on smaller, more dispersed flat sites. It is thus not surprising that there is a well-documented correlation between rich and diverse material culture and tell occupation (Raczky 1987; Meier-Arendt 1992; Kovács 1994), given the social distinctions present in the multiple social networks in which tell-occupants are embedded. Often a history of deposition of richer and more distinctive material culture on tells compared to flat sites reinforces the advantage of tells in ritual competition and the acquisition of exotic artifacts.

The competitive ideology expressed by the vertical tell dimension

and the acquisition of rich and diverse material items is an outgrowth of the continuing negotiation over the meaning of the historical narratives within which each settlement cluster is enmeshed and the rivalries generated by intensive if small-scale social interactions on nucleated settlements. These social developments were not necessarily predictable at the time when tells-to-be were emerging but themselves emerged after the apparent stabilisation of a tell mound tradition. A primary characteristic of periods of tell-occupation is the paradox between the apparently timeless tell mound tradition and the intense contestations of groups and sub-groups for the identity of both communities and their places.

THE EMERGENCE OF TELLS ON THE GREAT HUNGARIAN PLAIN

The Great Hungarian Plain forms one of the largest lowland areas in central Europe and is dominated by three major rivers – the Tisza, the Körös and the Maros ([Figure 13.1](#)). The apparent flatness of the Plain, its treeless appearance (the ‘puszta’) and its rich, well-drained farmland are all the products of Holocene environmental change. In the Neothermal period (or climatic optimum), the Plain was covered in forest or forest-steppe (Jarai-Komlodi 1987; Stevenson 1991; Willis in press), many valleys were yet to be infilled and perhaps as much as 30 % of the surface of the Plain was perennially flooded (Bognar-Kutzián 1972; Gillings 1995). The limited amount of aerial photography so far completed in the Alföld indicates the existence of a large number of currently dry palaeo-channels, with settlement sites often concentrating along their high banks.²

The development of a repertoire of domestic foodstuffs began in the early 6th millennium cal BC, in the so-called Körös group of the First Temperate Neolithic (Hartyányi 8c Novaki 1975; Bökönyi 1974). With few exceptions, Körös settlements are distributed south of the Berettyo river, forming a permeable boundary with as yet poorly documented foraging populations to the north (Nandris 1972; Kertész et al. 1995). It was only in the late 6th millennium cal BC that domestic foodstuffs were found on sites in the Northern Plain – the so-called Szatmár II settlements which are currently regarded as the earliest “Neolithic” sites in North East Hungary (Raczky 1988). There is thus a current perception of a time-lag in the spread of Neolithic lifeways in the Plain, which may be explained by the continuing attractions of broad-spectrum forager subsistence practices in a range of subtly differentiated, but often well-watered, environments.

The current dating of the earliest tells in eastern Hungary puts their emergence in both the South and the North Alföld to the late phase of

the Middle Neolithic, or Alföld Linear Pottery period (or AVK), currently dated to c. 48/4700 cal BC (Horváth 1991; Horváth & Hertelendi 1995). It is interesting to note that the period before the emergence of tell mounds in the South Alföld is therefore of much longer duration than in the north (one millennium in contrast to 500 years) – a difference in the character and impact of founders' effect. The key sites in this process can be defined as the Esztar sites in South East Hungary, Vésztő-mágori halom (Békés m.), Öcsöd-Kováshalom (Szolnok m.) and possibly Újtikos 005 (Hajdú-Bihar m.) (Figure 13.2) (Kalicz & Raczky 1987; Chapman 1995). Before an examination of these nascent tells, it is important to define the basis of social reproduction and site formation in the period before the emergence of tells – viz. in the Körös and early AVK periods.

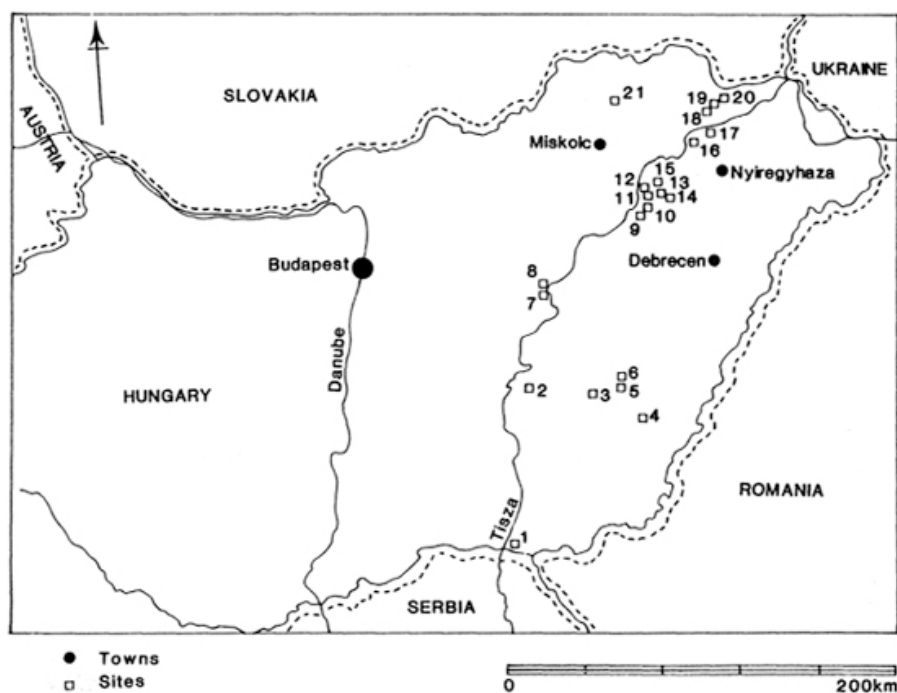


Figure 13.1: Location of the Great Hungarian Plain, with key East Hungarian sites mentioned in the text. 1 – Röske-Ludvár; 2 – Ocsöd-Kováshalom; 3 – Szarvas 23; 4 – Vésztő-Mágori halom; 5 – Endröd 119; 6 – Endröd 35; 7 – Szolnok-Szanda- Tenyosziget; 8 – Szajol-Felsőfölk; 9 – Polgár-Bosnyak domb; 10 – Polgár 46; 11 – Polgár- Csőszhalom; 12 – Polgár-Kenderföld; 13 – Polgár 9; 14 – Polgár-Kis Csőszhalom; 15 – Újtikos 005 (Tikos domb); 16 – Rakamaz? 001; 17 – Balsa 001; 18 – Sárazsádany 001; 19 – Bodrogsádany 0012; 20 – Bodrogolaszi 001; 21 – Encs-Gibárt

In the Körös period, settlement patterns followed the preferential occupation of river-and stream-side locations, with lateral re-location and occasional expansion along these presumably active channels (Sherratt 1982/3(a)). These settlements provide a classic example of

the palimpsest problem. Their size ranges from 50 x 50 m scatters to long thin sites more than 1 km in length (Makkay 1992; Ecsedy 1972). In smaller sites such as Szarvas 23, excavations of nine pits have produced typological and 14-C evidence for occupations stretching across an entire millennium, with small occupation foci of a house or at most two dating to each of the early, middle and latest phases of the Körös culture (Makkay 1981). As part of the MTA's Microregional Programme, a total excavation of a small Körös site was mounted at Endröd 119 and two phases of a single-household settlement were defined, each 50 years long and separated by 100 years or less (Makkay 1992). It is most likely that the long thin Körös sites represent successive occupations along active river channels, with only a fraction of the site utilised in any given decade. By the same token, small Körös sites may represent one or two short occupations by one-household group (e.g., Endröd 119), while larger sites show several phases of re-occupation by single households or dual household group (e.g., Szarvas 23), with the largest sites indicating multiple re-occupations by larger numbers of households (e.g., Endröd 35). At the inter-site level, the most striking pattern found in the County Békés survey is the clustering of 80% of the sites into 20 % of the landscape. These clusters of sites are often long-lived, showing continuous use of a small segment of a river valley for up to a millennium ([Figure 13.3](#)). It could be maintained that, if all the Körös occupations in a cluster had been superimposed, the result would have been a tell!

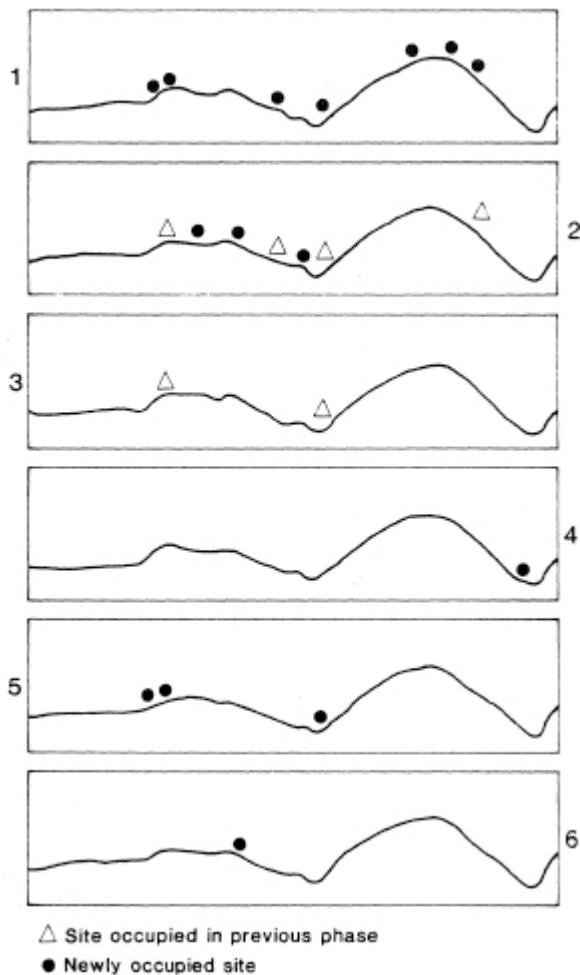


Figure 13.2: Example of a Site Cluster, Ko. Békés II Numbers denote Neolithic and Copper Age phases:

1 – Early Neolithic; 2 – Early Middle Neolithic; 3 –Late Middle Neolithic; 4 –Late Neolithic; 5 – Early Copper Age; 6 –Middle Copper Age

The site formation processes at these Körös sites concern the remains of houses and pits and their contents. Few Körös houses have been excavated (for an exception, see Makkay 1992); the evidence that relatively small quantities of daub are used and that building refuse remains unconsolidated after the abandonment of the structure. In two cases, the final act in the life of the house was the burial of a single individual (Szajol-Felsőföldék and Szolnok-Szanda-Tenyősziget: Raczky 1982/83; Chapman 1994). It maybe that, after the end of the life of a house, a low mound would be formed (cf. Bradley 1994(a)) which would gradually level out, leaving a concentration of daub and artifacts for future reference. The Körös groups were enthusiastic pit-

diggers, with the primary aim of mining clay for use in either daub-forming, potting or the manufacture of other fired clay artifacts, including figurines. It seems likely that the associations between clay and the fertility of the soil would have been carried over into the house and its tool-making (cf. the 'domus' concept of Hodder 1991). A number of secondary functions for the pits has been defined, such as burial places, working areas, pits for food refuse and the 'structured' deposition of artifacts. The large quantity of material deposited is often striking, whether the freshwater shells which form midden-size layers in one pit or the tens of thousands of sherds discarded in another pit at Röske-Ludvár (Trogmayer 1967). It seems very probable that Körös group ritual involved deliberate smashing and discard of large quantities of ceramics, and perhaps also the largescale collection and dumping of shells. It is important to note, however, that none of the Körös pit refuse was burnt and that often pit refuse was discarded in many small lenses, as a result of many discrete episodes.

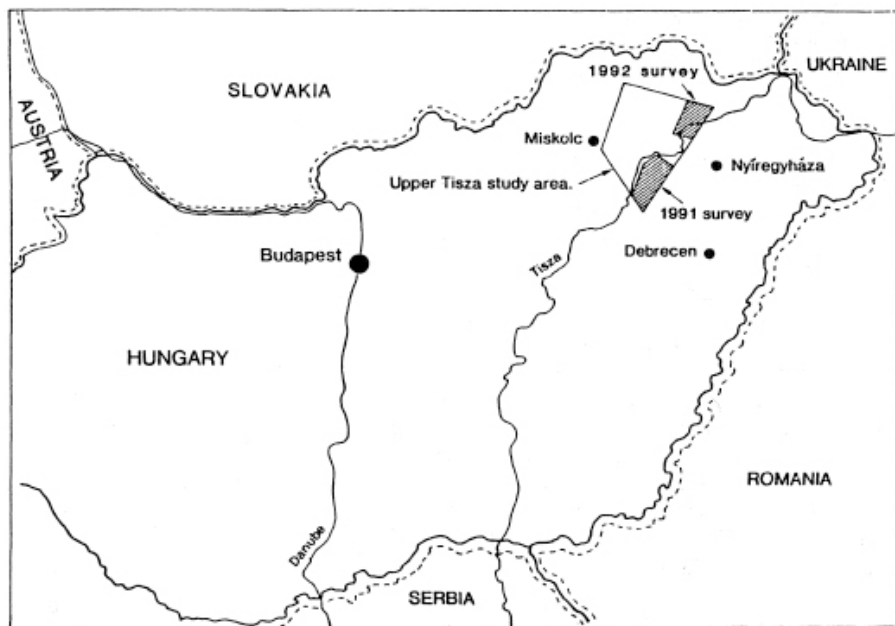


Figure 13.3. UTP study region, North East Hungary. 1991 block – Polgár block; 1992 block – Bodroghöz, block

In the subsequent AVK period, a number of similarities with Körös practices may be noted, especially in the use of wattle-and-daub houses and pit-digging. At the recently-excavated Polgár-9 (Hajdú-Bihar m.), a single AVK house as found in a large exposure, surrounded by a cluster of clay-pits (Raczky 1994) – perhaps a single farm similar to small Körös sites. No burials inside burnt houses have

yet been found in AVK contexts; instead, small groups of graves occur within the site (e.g., Polgár-10: Chapman & Laszlovsky 1995). AVK groups made heavy use of pits, which contained less artifactual diversity and quantity but often comprised pit stratigraphies with different pottery styles (Makkay 1990). The evidence for structured deposition in pits was less evident than in the Körös period. The small quantities of daub found on AVK sites suggest that the abandoned houses may have formed low mounds for short periods.

In summary, social reproduction in the Körös and early AVK periods relied on living for the most part in a small number of carefully selected site clusters, the periodic return to key, old, previously occupied settlements and the maintenance of a high degree of similar, though quite varied, material culture, often carefully deposited in pits. The rhythm of the burial of the dead and the 'death' (through abandonment) of sites is reminiscent of Küchler's analysis of the New Ireland landscapes. She comments that, for a landscape to be recollected, it has to be rendered absent and handed over to forgetting and that the erasure of such landscapes are rendered by, first, burial of humans, and, secondly but more definitively, through the abandonment of settlements (Küchler 1993, 97). The death of some individuals in Koros sites may have been so polluting that the death of the settlement, leading to site re-location, was the primary response (Chapman 1994).

New evidence for the development of tells in the northern part of the Alföld Plain has recently been provided by the excavation of two tells near the town of Polgár – the Late Neolithic tell of Polgár-Csőszhalom and the Earlier Bronze Age tell of Polgár-Kenderföld (Raczky et al. 1995) – and the inter-disciplinary research project the Upper Tisza Project in the same and adjoining areas (Chapman & Laszlovsky 1992; 1993; 1994; Chapman 1995).³ The study region was selected specifically to cover those areas in which the northernmost tells of the entire Eurasian distribution were located (Figure 13.4). Three survey blocks have been investigated, in each of which the location of tells has been confirmed. In the Polgár block (Block 1), a probable late AVK tell has been identified, together with two Late Neolithic tells and a probable third, and several Bronze Age tells. In the Bodroghöz block (Block 2), nucleated Late Neolithic and Bronze Age sites have been identified, two in the form of low tells. Finally, although no tells have been located in the upland Zemplén Mountains block (Block 3), a low Bronze Age mound is known from the Hernád valley on the western edge of the Zemplén hills.

In the Polgár block (Figure 13.5), the only known late AVK tell is

the mound known as Tikos domb (site no. Újtikos 005). The only prehistoric ceramics found all over the surface of the mound, on which a Medieval chapel was later built, was Middle Neolithic Tiszadob-style pottery. Unfortunately, because the surrounding landscape is under long-term pasture, it has not been possible to set Tikos domb in any general settlement context. The site is unusual in that it is located over a kilometre from the nearest known palaeo-channel. Broadly contemporary with Újtikos 005 were two contrasting types of AVK settlements: a large site – Polgár 46, comprising a large number of discrete and presumably sequential occupation remains and clusters of up to 12 small separate and also presumably sequentially occupied settlements, for instance on the edge of the large Kengyel palaeo-channel. The point of interest in these three broadly coeval settlement forms is that, although the Polgár 46 site and the Kengyel cluster were occupied for generations if not centuries by a succession of small-scale groups, neither of these units coalesced to form a tell community in the late AVK phase. The Újtikos 005 site presents an intriguing case of origins, which cannot, with the present data, be solved.

A further contrast in the Late Neolithic is that the largest tell in the Polgár block–Polgár-Csőszhalom (Raczky et al. 1995) – is located in the centre of the AVK Kengyel cluster ([Figure 13.6](#)). Recent excavations by P. Raczky on behalf of the Hajdú-Bihar County Museum Directorate have revealed the presence –hinted at in the UTP 1991 field surveys by a large concentration of surface polished stone axe finds – of a large flat site to the East of the tell; this flat site continues at least 100m west of the tell also.⁴ The flat site can be dated to the first and second phases of the tell only; later, the tell continued in use and the flat site was abandoned (p.c. P. Raczky). This pattern suggests that the dispersed AVK groups nucleated not only on but also around the tell, selecting for occupation favoured sites with a long history of previous place-values and place-myths. All of the constituent sites of the Kengyel cluster were intervisible with the Csőszhalom mound. By contrast, no evidence is found for the continuation of either Tikos domb or the large Polgár 46 AVK site into the Late Neolithic. Instead, another place near a cluster of AVK sites was selected for the foundation of a Late Neolithic tell – Bosnyak domb (Polgár 62). Here, the tell was formed on the high bank of the Kiraly stream, not far from the Tiszapolgár-Basatanya cemetery, which was first used as a mortuary place in this period (Bognár-Kutizian 1963). A third tell is known from the Polgár area which may also be dated to the Late Neolithic – the Kis Csőszhalom mound, destroyed by

canal-building in this century but still marked on 19th century maps of the region; no survey has been possible in this area.

The only extensively excavated Neolithic tell in the Polgár block is Csöszhalom. The site is dominated by a concentric arrangement of ditches, pits and palisades, the latter alternating with construction phases of wattle-and-daub structures (Raczky et al. 1995). The principal difference in site formation between the Körös/AVK sites and Csöszhalom is the sheer quantity of daub deposition in all phases of the site's occupation (e.g. in the north-east section of Trench 1, a huge tumble of daub fills a Phase 4 ditch). Much, if not all, of the daub derives from the large post-hole structures with their thick walls and solid floors. The vast majority of daub seen in the Csöszhalom sections appears to be burnt, suggesting a second difference from Körös/AVK practices, which would lead not only to consolidation of the daub but also the preservation of its bulk in a depositional environment. It has been proposed for Late Neolithic tells in general that the burning of the structures could well indicate deliberate destruction of the structures, complete with their large and varied contents (Chapman 1994). Nothing yet seen in the reports on the site of Csöszhalom would serve to falsify this explanation.

In summary, the Polgár block evidence suggests that tell formation began as early as in the South Alföld and that the two main Late Neolithic tells were firmly rooted in the historical space of late AVK communities – Csöszhalom in the centre of an AVK cluster and Bosnyak domb on the edge of an AVK cluster. These cases provide partial support for the model of tell-becoming presented above. But there are several other AVK clusters in which tell formation did not ensue in either the late AVK or the Late Neolithic.

This is also the case the further north you move towards the edge of the Alföld plain. In the Bodrogek block (Figure 13.7), there are no obvious AVK clusters and no evidence for an AVK tell. In one environmental zone within Block 2 – the Kenézló sand island – there are no tells in any period, rather large flat sites with multi-period occupations. In the second environmental zone, the north-west part of the sandy Nyirseg, two large multi-period sites – Balsa 001 and Rakamaz 001 – are known to contain Middle and Late Neolithic components but on neither is a Neolithic tell attested. At Rakamaz 001, a low mound is, however, formed in the Earlier Bronze Age. In the third environmental zone, the high right bank of the Bodrog valley, two low mounds are known from the Bronze Age – one with a Late Neolithic occupation. On current field evidence, however, it is impossible to verify that Bodrogsádany 001 was a true tell in the Late

Neolithic, since the site is covered by the modern village gardens. There is no evidence of any Late Neolithic pottery from the other Bronze Age mound – Bodrogolaszi 001. By contrast, the major Late Neolithic site in the Bodrog valley – Sárzásádany 001 – is a large, flat site with massive surface concentrations of lithic artifacts and much surface daub. Geophysical survey of part of the Sárzásádany 001 site by UTP in 1993 revealed traces of a regular layout of houses with large rectangular daub floors. There is no field evidence to support the idea that tell formation took place at this site, although it is possible that Sárzásádany 001 was a multi-level occupation in the process of becoming a tell.



Figure 13.4: Distribution of Middle Neolithic sites in the Polgár Block

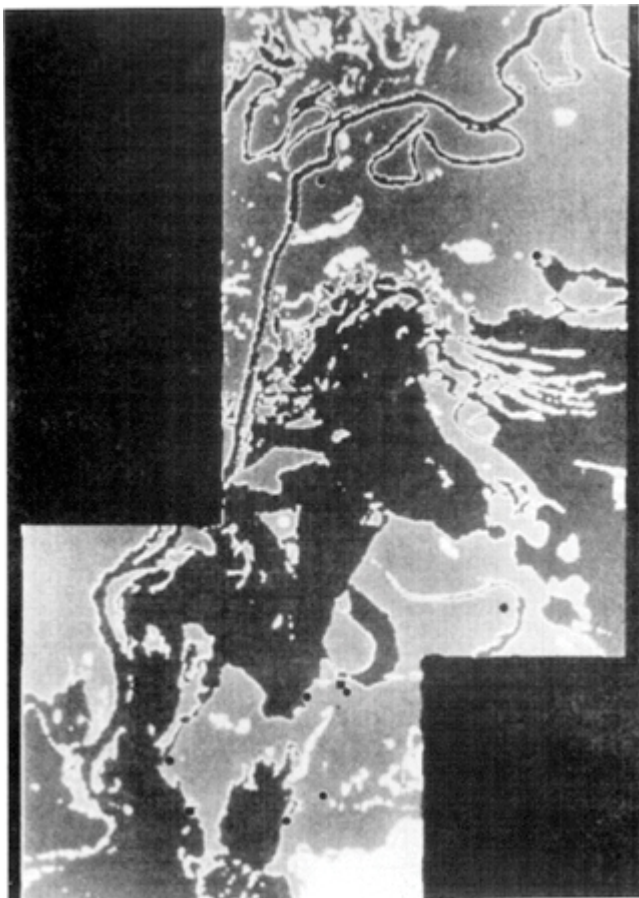


Figure 13.5: Distribution of Fate Neolithic sites in the Polgár Block

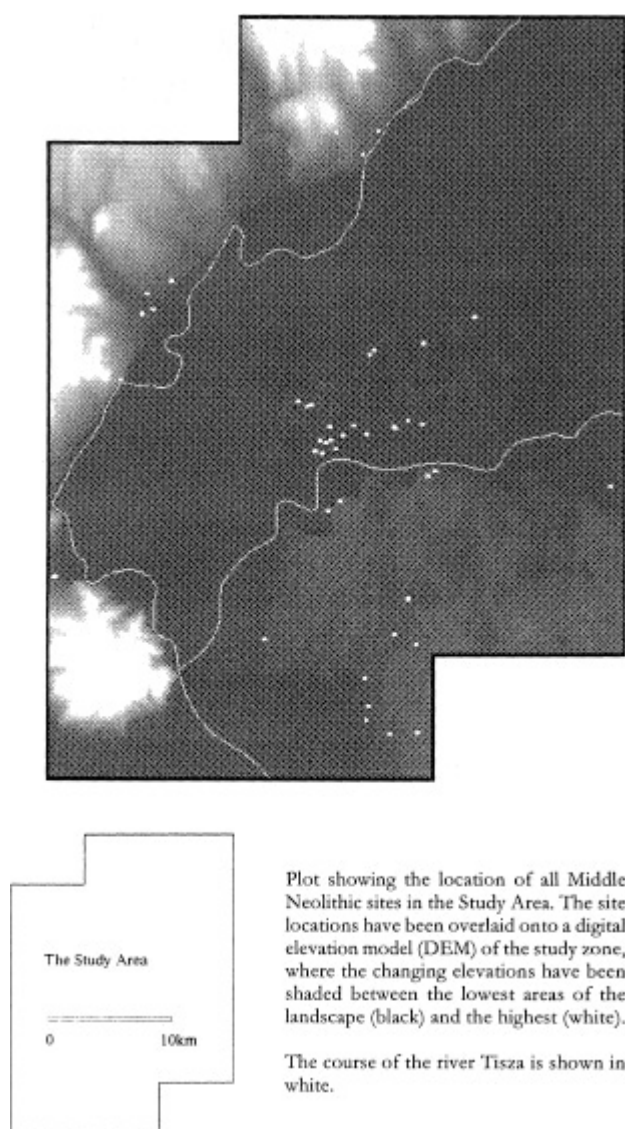


Figure 13.6a: Distribution of Middle Neolithic sites, Bodrogek block

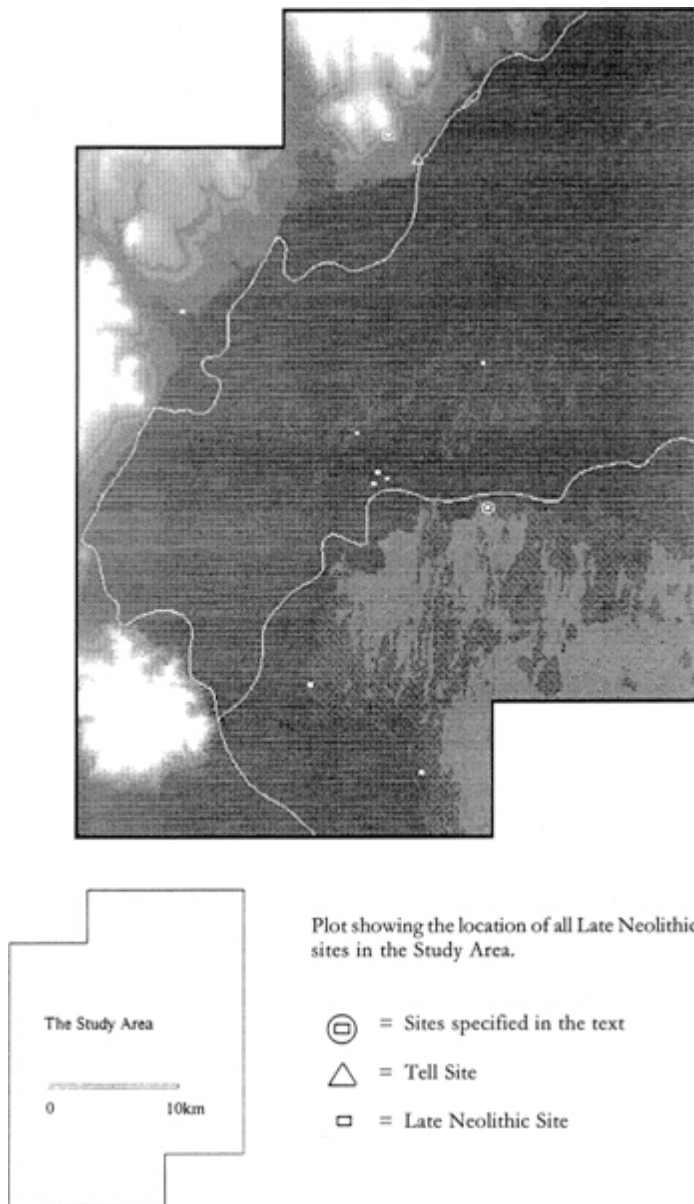


Figure 13.6b: Distribution of Late Neolithic sites, Bodrogköz, block

The settlement pattern in the Bodrogköz block reflects the increasing choice of nontell options in the Late Neolithic, together with a small number of foundations of low mounds in the Earlier Bronze Age. In this block, fewer site clusters are known from any phase of the Neolithic, the emphasis being on the multi-period re-occupation of nodal sites such as Rakamaz 001.

The same picture is noted in the valleys of Northern Hungary flowing south into the North Alföld plain. No tells are known from the

Zemplén Mountains in the Neolithic period or later. It is only in the wide, fertile valley of the river Hernád that small numbers of Earlier Bronze Age mounds are known. The best example is Encs-Gibart, located on the high bank of the Hernád and comprising a low mound with several occupation layers. This is currently the northernmost tell in Eurasia. Absence of intensive survey in this region makes it impossible to set Encs-Gibart in its long-term settlement context.

The field survey evidence from the Upper Tisza Project, in conjunction with the excavation data from Polgár-Csöszhalom and Polgár 006, provides a new definition of the problem of the emergence of the tell way of life in the northernmost part of its wide distribution. The clearest pointer from this new data is the existence in all parts of North East Hungary of alternatives to the strategy of tell creation. We now return to the question of the origins of the tell idea in the Great Hungarian Plain.

MOUND FORMATION: THE ORIGIN OF AN IDEA

In the introduction, the notion of the diffusion of tells as if they were just another kind of artifact was justly criticised (see above, [p. 139–40](#)). It is clear that tell-living constituted a complex and multi-faceted set of specific spatial, ideological and economic practices. Diffusion of this total package is improbable except through the medium of a movement of people, a notion upon which physical anthropology is as yet unable to adjudicate and which thus can rarely be totally excluded. It has also been noted that tells cannot spring fully formed from the soil of an ancestral place but depend, *inter alia*, upon the passage of time. The introduction of the concept of tell living is therefore very different from the slow coming-into-being of tells through several generations. Hence, even if the notion of the diffusion of the idea of tell living can be accepted, local processes of social action and reproduction, including all the social vagaries and unintended consequences discussed above, would have intervened long before a mound was ever formed. In short, diffusion of a concept is one thing, implementation quite another. But is there any evidence in support of the diffusion of the idea?

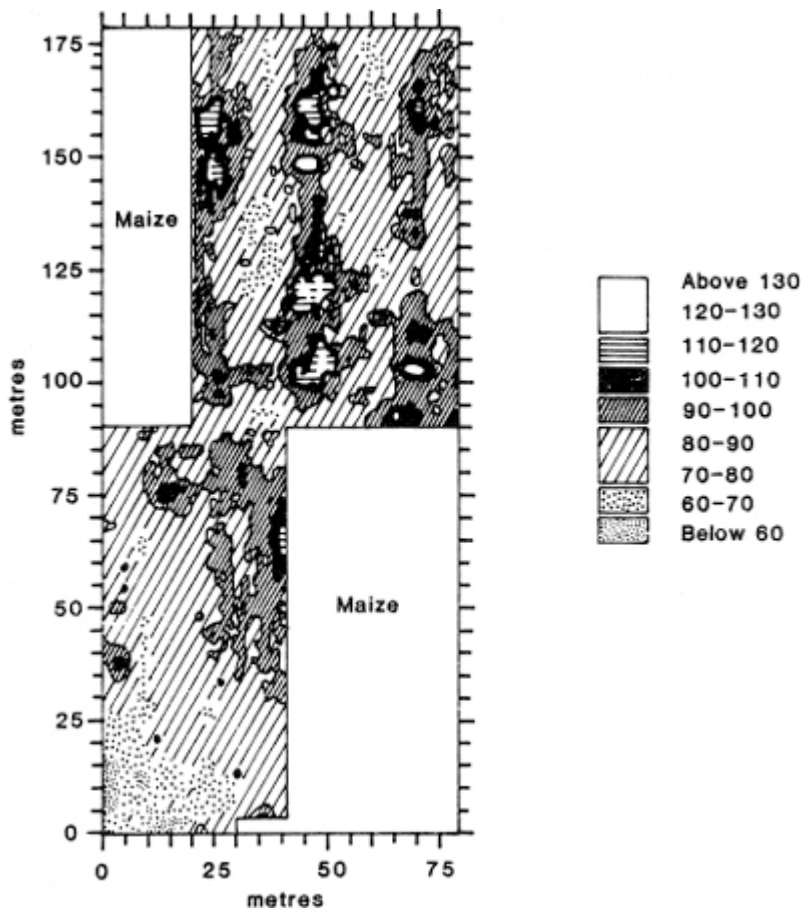


Figure 13.7: Geophysical plan of the central part of the Late Neolithic settlement of Sarahsady 001 (survey by C. Titman)

We have seen that the earliest tells in the Great Hungarian Plain can be dated to c. 4800 cal BC (Horváth 1991; Raczky 1987). By this date, tells were widespread in Thessaly, Macedonia and Bulgaria and also occurred sporadically in Serbia (e.g., Vinca-Belo Brdo), Slavonia (e.g., Bapska-Gradac), Bosnia (e.g., Gornja Tuzla), Transylvania (e.g., Tartăria), and Oltenia (e.g., Vădastră) (Figure 13.8). There is convincing artifactual evidence for a series of overlapping exchange networks which linked many of these areas to the people of the Alföld Plain. Obsidian from South East Slovakia and North East Hungary reached its peak of distribution in the early 5th millennium cal BC (Williams-Thorpe et al. 1984; Biró 1988), with finds in Slavonia, Bosnia, Serbia, Transylvania and Oltenia. Small quantities of decorated Szakalhát pottery from South East Hungary are found as far south as Thessaly (Grundmann 1932), while larger quantities including complete vessels are known from the Vinca tell near

Belgrade (Vasic 1936, 37, T. XXXII, 68). By the same token, Vădastră decorated sherds are known from Szakalhát contexts in Hungary and polished stone ornaments typical of the Vinca group are known from Szakalhát sites also (Szenaszky 1976).

It is well known that ideas and innovations form part of the exchange process amongst small-scale societies (Renfrew 1969). These 5th millennium inter-regional exchange networks are generally thought to reflect down-the-line exchange, with individuals rarely travelling farther than the next village and exchanges generally embedded in other local social transactions. Such an exchange mechanism would not be the most effective method for the diffusion of a concept such as tell living over hundreds of kilometres. However, in the context of the Greek Early Neolithic, Ferlès (1992) has argued for the existence of long-distance maritime trading specialists. It seems far more likely that the notion of tell living would have been spread through the activities of what Helms (1988) has termed long-distance specialists' rather than through the long chain of down-the-line inter-village contacts.

Helms has discussed the ethnographic evidence for the high status of such specialists in their own communities, since they have witnessed far more than local people and lived to tell the tale. It is indeed the traveller's tale that is the main medium of information exchange: is it possible that a Szakalhát long-distance specialist visited the tell at Vinča and learnt something of its place-value, its traditions and the varying competing historical narratives associated with the long-occupied and impressive site? When such specialists returned home, their ideas and information held special interest and possibly even cultural significance – not least if they were conveyed in epic tales and retained in oral tradition. This, then, is the proposed social context for the diffusion of ideas about tell living from coeval tell residential groups in other parts of the Danube basin. It is hard to dismiss such a process of the transfer of ideas about tell living from one region to another.

However, any external ideas, especially novel ones, must face rigorous local validation, by which they are evaluated against the local mythologies and place-myths before any resulting social action is possible. And, in such a scenario, the question arose of the process of mound formation. Given that the quantity of earth needed to make a 1-metre mound of 50m diameter is c. 2,000m³, this question is anything but academic. The main source of the material for mound formation is clay, unfired if washed off structures, fired if re-used after the death of a structure. It is important to consider the significance of

clay and especially house daub in this question.

One of the important innovations in the 5th millennium cal BC in South East Europe is the building of larger, more solid and longer-lasting houses than had been constructed before (Tringham & Krstić 1991). The solid clay floors were built as platforms which required large quantities of clay (e.g., 30m³ for a 15m x 8m house, with a 25cm-thick platform) and the walls were made of daub plastered onto wattle (a further estimated 25m³ for such a house). If ten such houses were occupied in a single occupation phase, the clay requirements would have been of the order of 550m³. While greater quantities of clay would have washed off the walls of larger houses, slowly being incorporated into the tell surface, the real difference in mound formation was the incorporation of the products of the dead house into the mound. Hence, one of the local pre-conditions for the development of tells was surely the creation of a new type of house from the 5th millennium onwards – a date not coincidentally similar to that for the earliest tells in the Alföld Plain. However, there are many communities in Eastern Europe who lived in such houses but did not build tells (e.g., the Cucuteni – Tîpărie group, with the sole exception as yet of the Tell at Poduri): a more active process was vital to tell formation than simply building larger houses.

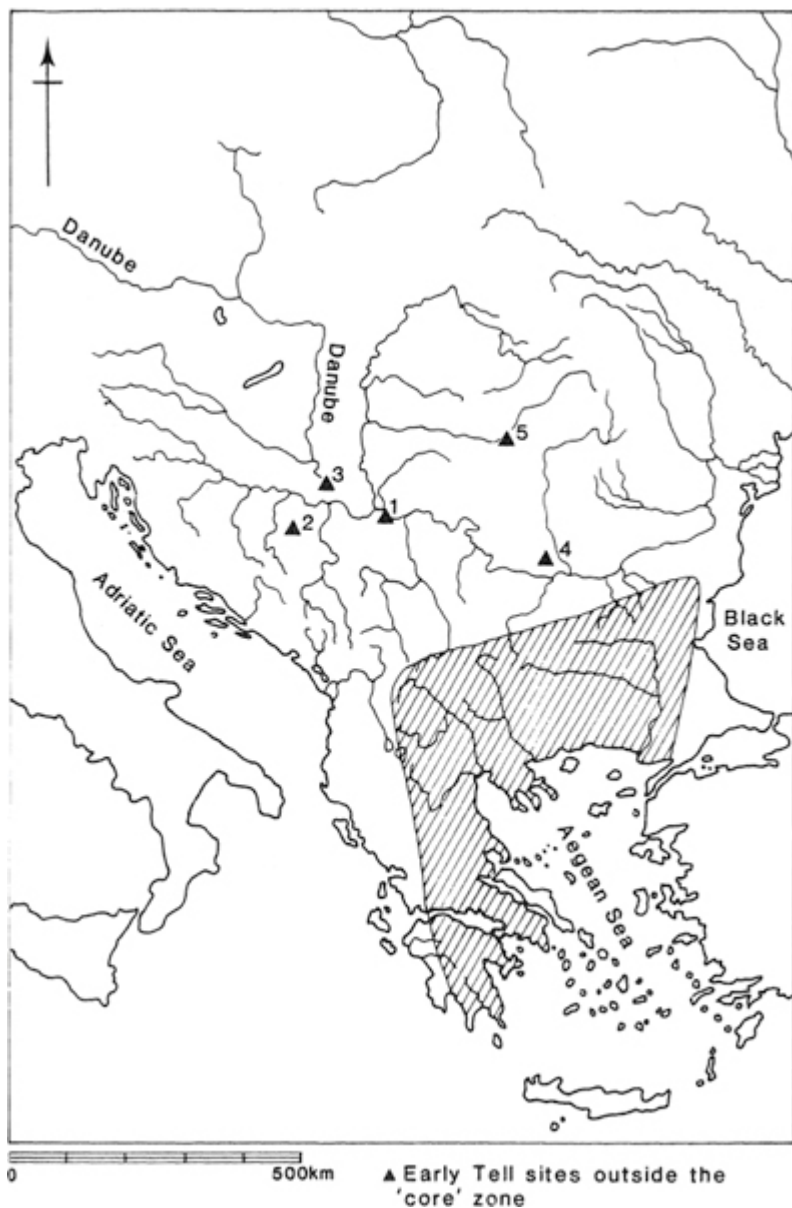


Figure 13.8: Location map of South East and Central Europe, with locations of main tell zones. Sites: 1 –Vinča-Belo Brdo; 2 –Gornja Tuzla; 3 – Bapska-Gradac; 4 – Vădastră; 5 – Tartăria

I suggest that the crucial difference was in the development of new attitudes to daub. The transformation of clay into daub resembles the related processes of pottery-making and bread-making –twin processes which depend upon fire to change the natural into the cultural. The process of burning is, however, one of the most dangerous experiences known to Neolithic people – the destruction of the domestic by the wild (Moore, in press). The accidental destruction by fire of houses in

a settlement must have been a regular occurrence; but there are grounds for believing that, on specific occasions, such as the death of a key member of the group, the inhabitants themselves deliberately burnt down a house full of its contents, and sometimes burnt the whole settlement (for the case for deliberate destruction, see Tringham & Krstic 1991; Chapman 1994). It is this 'cultural' appropriation of a wild force which changes social attitudes to daub.

Once daub is burnt, it becomes hard, enduring, coloured, fragmentable – and reusable. It is the only part of a burnt house which can be re-used, the timbers and the thatch having been destroyed. Since the floor is often fused into a solid mass, it is best left *in situ*; the wall daub is, however, portable and can be incorporated into a variety of contexts. The daub can be re-used in two ways: either for infilling or levelling the whole settlement surface; or for local incorporation into the foundation of a single house or a small number of structures. Daub can be moved from one site to another, as a permanent and enduring part of the material world. As well as representing an eminently practical and useful material for modifying the built environment, daub can be viewed as a cultural material bridging past and future, a product of the wild that has been if only partially tamed by humans, a symbol of ancestral homes and the continuity with the past. This new attitude to daub may well help to explain why Neolithic houses were deliberately burnt down at a time of special significance, since it carried forward the memory of that time into the new settlement space. The cultural significance of daub and its practical usefulness may well have combined together to produce the medium which enabled the process of mound formation. Whatever ideas of tell living were introduced into Plains communities from other regions, this local change in the ideology of the material world may have been critical to the possibility of tells-to-be becoming tells.

CONCLUSIONS

The settlement evidence from Central and Eastern Europe presents us with many examples of communities who rejected the option of repeated occupation of the same place and eventual mound formation. If the primary decision is to continue to occupy a site or to re-occupy an abandoned site rather than not, many groups lacked the social cohesion necessary to mobilize whatever the resources necessary for an institutional project. The group in question may have moved or dispersed because it lacked strong integrative ties or because of its response to the problems of social reproduction. Groups who were aware of tell projects in neighbouring areas may have expressed their

opposition to such a settlement form by using other cultural media for self-definition and social emulation and/or were unable to agree on the ancestral significance of potential places for resettlement. In any case, a succession of flat sites or the re-occupation of the margins of abandoned sites produced the effect of a landscape of flat sites, whose settlement history gradually came to be dominated by a rejection of the tell mode of living on ancestral places. There are undoubtedly many places where tells started to come-into-being but were then abandoned.

Nonetheless, in areas outside the classic tell zones of Thessaly, Macedonia and Bulgaria, a small number of tell sites documents the development of a specific ancestral ideology amidst a sea of flat sites. Two stages can be identified in the process of the coming-into-being of tells – a time when the sites resembled flat sites and a time when actual mounds were visible. These stages corresponded to two quite different aspects of social reality.

The earlier stage depends upon the selection of particular sites as key places for continued occupation or re-occupation and the concentration of both households and daub on these places. Choice of particular places depended upon the mental maps of previous sites in the relevant settlement cluster and the differentiation of the place-values and place-myths enshrined in oral tradition. Only the unanimous support of the entire social group would enable sufficient cohesion and group resources to be able to develop an institutional project such as a tell-to-be. This was also crucial for the nucleation of both people and materials, especially the daub of previous structures. It is proposed that the accumulation of sufficient material for mound creation depended not only upon the adoption of new and larger houses but also upon a new ideology concerning daub. This transformed material is now seen as a practical medium for bringing ancestral dwellings into the present and future as well as a symbolic appropriation of ancestral homes into current structures.

Once the tell mound becomes visible, the site is vertically differentiated from flat sites and from other tells. This vertical competition relates to varying time-depth relationships to the ancestral past and is inter-related to the social competition between the cross-cutting interest groups of the nucleated tell communities, the latter typically expressed through the deposition of exotic and elaborate material culture. The historical narratives within which long-lived places develop are the subject of negotiation between groups investing different meanings in the same tell places.

In both the southern and northern parts of the Great Hungarian

Plain, tells emerge as visible mounds in the late Middle Neolithic, c. 4800 cal BC. In the UTP study region in North East Hungary, late Neolithic tells such as Polgár-Csőszhalom develop in areas of dense Middle Neolithic settlement but few tells are known from this period. The social cohesion required for such major institutional projects appears to be absent in all but a few localities.

The area of North East Hungary in fact constitutes the northernmost area where tells are known in the entire Eurasian distribution; further north, the form of community settlement appears to indicate smaller social groups, if not shorter-term occupations, and the absence of a similar ideological attitude to daub.

Notes

1. The formation of what Raczky (1987a) calls ‘pseudo-tells’ can be related to a greater dispersion of domestic occupation across the total living space. A good example is Ocsod-Kovashalom, with its separate settlement nuclei producing a low mound.
2. For instance, the photographs taken by the late Professor St. Joseph (1992 sortie); see also the GIS contour modelling of the Gyomaendröd microregion: Jerem et al. 1992, inner back cover).
3. The Upper Tisza Project is an Anglo-Hungarian research project designed to define and explain changes in the physical and social environment of the Upper Tisza basin in North East Hungary over the last 10,000 years.
4. A soil pit dug for UTP in September 1994 revealed the presence of a 0.50 m-thick occupation layer buried 0.75 m beneath the present land surface.

Acknowledgements

I am happy to acknowledge financial support for the Upper Tisza Project (1991 – 96): the National Geographic Society, the British Academy, the University of Newcastle upon Tyne and the Society of Antiquaries of London, the Research Committee of the University of Newcastle and the Prehistoric Society. It has been a source of great strength to have received support for these bodies from: John D. Evans, Anthony Harding, David Harris, Jimmy Griffin, Bernard Wailles and Greg Johnson. I am more than grateful to all my coworkers on this project for discussing and criticising these ideas, the most important of whom are Robert Shiel, Pál Raczky and József Laszlovszky; also to other colleagues such as Doug Bailey and Josh Pollard. I am immensely grateful to János Makkay for sharing the Békés II survey data with me and for many friendly discussions on Hungarian prehistory over the years. What is left that does not

convince is my problem.

Bibliography

- Adams, D, 1995, *Hitchhikers Guide to the Galaxy*. London. William Heinemann
- Albini, F A, 1993, Dynamics and modelling of vegetation fires: observations. In P J Cratzen and J G Goldammer (eds), *Fire in the Environment, The Ecological Atmospheric, and Climatic Importance of Vegetation Fires*. Chichester. John Wiley & Sons. 39–52
- Aldsworth, F G, 1979, A possible Neolithic oval barrow on Nore Down, West Marden. *Sussex Archaeological Collection*, 117, 251
- Aldsworth, F G, 1983, Prehistoric flint mines on Nore Down, West Marden. *Sussex Archaeological Collections*, 121, 187–90
- Alexander, J H, 1961, The Excavation of the Chestnuts Megalithic Tomb at Addington, Kent. *Archaeologia Cantiana*, LXXVI, 1–57
- Allen, M J, 1991, Analysing the landscape: A geographical approach to archaeological problems. In A J Schofield (ed), *Interpreting Artefact Scatters, Contributions to Ploughzone Archaeology* (= Oxbow Monograph 4). Oxford. Oxbow 39–57
- Allen, R H, and Sturdy, R G, 1980, The environmental background. In D G Buckley (ed), *Archaeology in Essex to AD 1500* (= CBA Research Report 34). London. Council for British Archaeology. 1–7
- Ashbee, P, 1993, The Medway Megaliths in Perspective. *Archaeologia Cantiana*, CXI, 57–111
- Aston, M, and Rowley, T, 1974, *Landscape archaeology*. Newton Abbot. David and Charles
- Atkinson, R J C, 1979, *Stonehenge* (Revised edition). Harmondsworth. Penguin
- Avery, M, 1982, The Neolithic causewayed enclosure, Abingdon. In H J Case and A W R Whittle (eds), *Settlement Patterns in the Oxford Region, excavations at the Abingdon causewayed enclosure and other sites*. Oxford. CBA and Department of Antiquities, Ashmolean Museum. 10–52
- Bailey, G, 1987, Breaking the time barrier. *Archaeological review from Cambridge*, 6(1), 5–20
- Barclay, G J, 1996, Neolithic buildings in Scotland. In T Darvill and J Thomas (eds), *Neolithic houses in northwest Europe and beyond* (= Oxbow Monograph 57). Oxford. Oxbow. 61–75
- Barrett, J C, Bradley, R j, and Green, M, 1991, *Landscape, monuments and society*. Cambridge. Cambridge University Press
- Barrett, J C, 1994, *Fragments from Antiquity, An archaeology of social life in Britain, 2900–1200 BC*. Oxford. Blackwell
- Barrett, S W, and Arno, S F, 1982, Indian Fires as an Ecological Influence in the Northern Rockies. *Journal of Forestry*, 647–651
- Bauval, R, and Gilbert, A, 1994, *The Orion Mystery*. London. Heinemann
- Bedwin, O, 1981, Excavations at the Neolithic Enclosure on Bury Hill, Houghton, W. Sussex 1979. *Proceedings of the Prehistoric Society*, 47, 69–86
- Bedwin, O, 1984(a), Aspects of Iron Age Settlement in Sussex. In B Cunliffe and D Miles (eds), *Aspects of the Iron Age in Central Southern Britain*. Oxford. Oxford University Committee for Archaeology, 46–51
- Bedwin, O, 1984(b), The Excavation of a Small Hilltop Enclosure on Court Hill, Singleton, W. Sussex, 1982. *Sussex Archaeological Collections*, 122, 13–22
- Bedwin, O, 1992, Prehistoric Earthworks on Halnaker Hill, West Sussex, Excavations 1981–1983. *Sussex Archaeological Collections*, 130, 1–12
- Bender, B, 1978, Gatherer-hunter to farmer, a social perspective. *World Archaeology*, 10, 204–222
- Bender, B, 1985, Prehistoric developments in the American midcontinent and in Brittany, north-west France. In T D Price and J Brown (eds), *Prehistoric huntergatherers, The emergence of cultural complexity*. New York. Academic Press. 21–57
- Bender, B, 1992, Theorizing landscapes, and the prehistoric landscape of Stonehenge. *Man* (ns), 27, 735–55
- Bender, B, (ed), 1993, *Landscape, Politics and Perspectives*. Oxford. Berg

- Bennett, P, 1987, Castle Hill, Folkestone. *Canterbury's Archaeology 1986-7*. Canterbury. Canterbury Archaeological Trust. 20-21
- Benson, D, and Miles, D, 1974, *The Upper Thames Valley, An Archaeological Survey of the River Gravels* (= Oxford Archaeological Unit Report 1). Oxford. Oxford Archaeological Unit
- Berdoulay, V, 1989, Place, meaning and discourse in French language geography. In J A Agnew and J S Duncan (eds), *The power of place, Bringing together geographical and social imaginations*. Boston. Unwin Hyman. 124-139
- Berndt, R, 1972, The Walmadjeri and Gugadja. In M Bicchieri (ed), *Hunters and Gatherers Today*. New York. Holt, Rinehart and Winston
- Bewley, R, 1994, *Prehistoric Settlements*. London. Batsford/English Heritage
- Binford, L R, 1980, Willow smoke and dogs' tails, hunter-gatherer settlement systems and archaeological site formation. *American Antiquity*, 45, 4-20
- Binford, L R, 1982, The archaeology of place. *Journal of Anthropological Archaeology*, 1, 5-31
- Binford, L R, 1983(a), *In pursuit of the past*. London, Thames and Hudson
- Binford, L R, 1983(b), Long-term land use patterns, some implications for archaeology. In L R Binford, *Working at archaeology*. New York. Academic Press. 379-86
- Bir6, KT, 1988, Distribution of lithic raw materials on prehistoric sites. *Acta Archaeologica Hungarica*, 40, 251-274
- Bloch, M, 1995, The resurrection of the house among the Zafimaniry of Madagascar. In J Carsten and S Hugh-Jones (eds), *About the house, Lévi-Strauss and beyond*. Cambridge. Cambridge University Press. 69-83
- Bognár-Kutzián, I, 1963, *The Copper Age cemetery of Tisapolgár-Basatanya*. Budapest. Akadémiai Kiadó
- Bognár-Kutzián, I, 1972, *The Early Copper Age Tiszapolgar Culture in the Carpathian Basin*. Budapest. Akadémiai Kiadó
- B6k6nyi, S, 1974, *History of domestic mammals in central and eastern Europe*. Budapest. Akadémiai Kiadó
- Booth, A St J, and Stone F S, 1952, A trial flint mine at Durrington, Wiltshire. *Wiltshire Archaeological Magazine*, 54, 381-8
- Boserup, E, 1965, *The conditions of agricultural growth*. London. Allen and Unwin
- Bradford, J S P, 1949, "Buried landscapes" in southern Italy. *Antiquity*, 23, 58-72
- Bradford, J S P, 1950, The Apulia Expedition, an interim report. *Antiquity*, 24, 84-95
- Bradford, J S P, 1957, *Ancient Landscapes*. London. G Bell & Sons Ltd
- Bradford, J S P, and Williams-Hunt, P R, 1946, Siculo Apulia. *Antiquity*, 20, 191-200
- Bradley, R, 1978, *The Prehistoric Settlement of Britain*. London. Routledge and Kegan Paul
- Bradley, R, 1984, *The Social Foundations of Prehistoric Britain*. London. Longmans
- Bradley, R, 1987, Flint technology and the character of Neolithic settlement. In A G Brown and M R Edmonds (eds), *Lithic analysis and later British prehistory* (= BAR British Series 162). Oxford. British Archaeological Reports. 181-6
- Bradley, R, 1993, *Altering The Earth, The Origins of Monuments in Britain and Continental Europe* (= Society of Antiquaries of Scotland Monograph 8). Edinburgh. Society of Antiquaries of Scotland
- Bradley, R, 1994(a), *From the house of the dead*. Paper presented to the Theoretical Archaeology Group Conference, 14-16/XII/1994, Bradford
- Bradley, R, 1994(b), In C Renfrew and E B Zubrow (eds), *The ancient mind, Elements of cognitive archaeology*. Cambridge. Cambridge University Press
- Bradley, R, and Holgate, R, 1984, The Neolithic Sequence in the Upper Thames Valley. In R Bradley and J Gardiner (eds), *Neolithic Studies, A Review of Some Current Research* (= BAR British Series 133). Oxford. British Archaeological Report. 107-34
- Brown, J E, (ed), 1971, *The Sacred Pipe*. Harmondsworth. Penguin
- Brown, K A, 1991(a), Settlement distribution and social organisation in the Neolithic of the Tavoliere, Apulia. In E Herring, R Whitehouse and J Wilkins (eds), *Papers of the Fourth Conference of Italian Archaeology. The Archaeology of Power*. London. Accordia Research Centre. 1, 9-25
- Brown, K A, 1991(b), A passion for excavation. Labour requirements and possible functions for the ditches of the 'villaggi tricerati' of the Tavoliere, Apulia. *Accordia Research Papers*, 2, 7-30
- Brown, K A, 1995, Social control or 'Opium of the people'? The role of religion in the

- Neolithic of the Tapolcser. In W H Waldren, J Ensenyat and R C Kennard (eds), *Ritual, Rites and Religion in Prehistory, Illrd Deia Conference of Prehistory* (=B AR International Series 611). Oxford. Tempvs Reparatum. 183–193
- Brown, N, 1986, The Prehistoric Pottery. In N P Wickenden, The Prehistoric Settlement and Romano-British small town at Heybridge, Essex. *Essex Archaeology and History*, 17, 7–68
- Brown, N, 1988, A Late Bronze Age enclosure at Lofts Farm, Essex. *Proceedings of the Prehistoric Society*, 54, 249–302
- Brown, N, forthcoming, The Neolithic Pottery. In T Wilkinson and P Murphy, *The Archaeology of the Essex Coast II, Excavations at the Stumble*. East Anglian Archaeology
- Brown, N, and Adkins, P, 1987, Heybridge. In D Priddy, Work of Essex County Council Archaeology Section, 1987. *Essex Archaeology and History*, 19, 250–258
- Brown, N, and Lavender, N, 1994, Later Bronze Age sites at Great Baddow and settlement in the Chelmer Valley 1500BC–500BC. *Essex Archaeology and History*, 25, 3–13
- Brown, P, and Buckley, D, 1985, Great Totham, Lofts Farm. In D Priddy (ed.) Work of the Essex Martingell. H. County Council Archaeology Section, Essex Archaeology and History, 16, 82–122
- Buckley, D G, 1991, Springfield, Springfield Lyons. In P Gilman (ed). Excavations in Essex 1990. *Essex Archaeology and History*, 22, 148–161
- Buckley, D G, 1992, Springfield Lyons. In P Gilman (ed), Archaeology in Essex 1991. *Essex Archaeology and History*, 23, 98–113
- Buckley, D G, and Hedges, J D, 1987(a), *The Bronze Age and Saxon Settlement at Springfield Lyons, Essex, An interim Report* (=ECC Occasional Papers 5). Chelmsford. Essex County Council
- Buckley, D G, and Hedges, J D, 1987(b), Excavation of a Cropmark Enclosure complex at Woodham Walter, Essex 1976. *East Anglian Archaeology*. 33, 1–46
- Buckley, D G, Major, H, and Milton, B, 1988, Excavation of a Possible Neolithic Long Barrow or Mortuary enclosure at Rivenhall, Essex, 1986. *Proceedings of the Prehistoric Society*, 54, 77–91
- Burgess, C B, 1980, Excavations at Houseledge, Black Law, Northumberland, 1979, and their implications for earlier Bronze Age Settlement in the Cheviots. *Northern Archaeology*, 1:1, 5–12
- Burgess, C B, 1984, The Prehistoric Settlement of Northumberland, A Speculative Survey. In R Miket and C Burgess (eds), *Between and Beyond the Walls*. Edinburgh. John Donald, 126–175
- Burgess, C B, Ovens, M, and Uribe de Kellet, A, 1981, The ground and polished stone implements of North East England, a preliminary statement. *Northern Archaeology*, 2:1, 24–33
- Burgess, C, Topping, P, Mordant, C, Maddison M (eds), 1988, *Enclosures and Defences in the Neolithic of Western Europe* (=BAR International Series 403). Oxford. British Archaeological Reports
- Burl, A, 1971, Two ‘Scottish’ Stone Circles in Northumberland, *Archaeologia Aeliana*, 4th Series, 49, 37–51
- Burl, A, 1976, *The Stone Circles of the British Isles*. London. Yale University Press
- Burl, A, 1995, *A Guide to the Stone Circles of Britain, Ireland and Brittany*. London. Yale University Press.
- Burleigh, R, 1975, Radiocarbon dates for flint mines. *Proceedings of the Second International Symposium on Flint, Maastricht*. Staringia 3, Nederlandse Geologische Vereniging
- Burns, R B, 1988, *Excavations at ferbourg, Guernsey*. Guernsey. Guernsey Museum
- Byrne, G, 1994, Rathlackan, Court tomb with associated pre-bog settlement. In I. Bennett (ed), *Excavations 1993*. Dublin. Wordwell. 61–62
- Care, V, 1979, The production and distribution of Mesolithic axes in southern Britain. *Proceedings of the Prehistoric Society*, 45, 93–101
- Case, H, 1969, Neolithic explanations. *Antiquity*, 43, 176–86
- Case, H, 1986, The Mesolithic and Neolithic in the Oxford Region. In G Briggs, J Cook and T Rowley (eds), *The Archaeology of the Oxford Region*. Oxford. Oxford University Department for External Studies. 18–37
- Case, H J, and Whittle, A W R, 1982, Cassington, 1950–2, Late Neolithic pits and the Big

- Enclosure. In H J Case and A W R Whittle (eds) *Settlement Patterns in the Oxford Region, excavations at the Abingdon causewayed enclosure and other sites*. Oxford. CBA and Department of Antiquities, Ashmolean Museum. 118–51
- Cassano, S M, and Manfredini, A, 1983, *Studi sul Neolitico de Tavoliere della Puglia, indagine territoriale in urtiarea-campione* (=BAR International Series 160). Oxford. British Archaeological Reports
- Cassano, S M, Cazzella, A, Manfredini, A, and Moscoloni, M (eds), 1987, *Coppa Nevigata e il suo territorio. Testimonianze Archeologiche dal VII al II millennio*. Roma. Quasar
- Caulfield, S, 1978, Neolithic fields, The Irish evidence. In H C Bowen and P J Fowler (eds), *Early Land Allotment*. (=BAR British Series 48). Oxford. British Archaeological Reports. 137–144
- Caulfield, S, 1983, The Neolithic settlement of north Connaught. In T Reeves-Smith and F Hamond (eds), *Landscape Archaeology in Ireland* (=BAR British Series 116). Oxford. British Archaeological Reports. 195–215
- Caulfield, S, 1988, *Céide Fields and Belderrig Guide*. Killala, Morrigan Book Co
- Champion, S, 1994, Regional Studies, A Question of Scale. In K Kristiansen and J Jensen (eds), *Europe in the First Millennium BC* = Sheffield Archaeological Monographs 6). Sheffield. J R Collis Publications. 145–150
- Champion, T, 1982, The Bronze Age in Kent. In P E Leach (ed), *Archaeology in Kent to AD1500* (=CBA Research Report 48). London. Council for British Archaeology. 31–39
- Chandler, C, Cheney, P, Thomas, P, 1983, *Fire in forestry. Volume 1*. New York. Wiley
- Chapman, J, 1991, The creation of social arenas in the Neolithic and Copper Age of South East Europe, the case of Varna. In P Garwood, P Jennings, R Skeates, and J Toms (eds), *Sacred and Profane* (=Oxford Committee for Archaeology Monograph No. 32). Oxford. Oxbow. 152–171
- Chapman, J, 1988, From “space” to “place”, a model of dispersed settlement and Neolithic society. In C Burgess, P Topping and D Mordant (eds), *Enclosures and defences in the Neolithic of western Europe* (=BAR International Series 403). Oxford. British Archaeological Reports. 21–46
- Chapman, J, 1989, The Early Balkan village. *Varia Archaeologica Hungarica*, II, 33–53
- Chapman, J, 1992, The creation of arenas of social power in Serbian prehistory, *Festschrift for D Garašanin. Zbomik Narodnog Muzeja (Beograd)*, 14, 305–317
- Chapman, J, 1993, Social power in the Iron Gates Mesolithic. In J C Chapman and P Dolukhanov (eds), *Cultural transformations and interactions in Eastern Europe* (=Worldwide Archaeology Series 5). Aldershot. Avebury. 61–106
- Chapman, J, 1994, The living, the dead and the ancestors, time, life cycles and the mortuary domain in later European prehistory. In J Davies (ed), *Ritual and remembrance. Responses to death in human societies*. Sheffield. Sheffield Academic Press. 40–85
- Chapman, J, 1995, Social power in the early farming communities of eastern Hungary – perspectives from the Upper Tisza region. *Jósa András Múzeum Evkönyve*, XXXVI, 79–99
- Chapman, J, and Laszlovsky, J, 1992, The Upper Tisza Project 1991, report on the first season, *Archaeological Reports 1991* (Durham & Newcastle upon Tyne), 10–13
- Chapman J, and Laszlovsky, J, 1993, The Upper Tisza Project, the September 1992 season. *Archaeological Reports 1992* (Durham & Newcastle upon Tyne), 13–19
- Chapman J, and Laszlovsky, J, 1994, Upper Tisza Project 1993. *Archaeological Reports 1993* (Durham & Newcastle upon Tyne). 13–19
- Chapman, J, and Laszlovsky, J, 1995, A Neolithic flood in eastern Hungary, the Upper Tisza Project 1994. *Archaeological Reports 1994* (Durham & Newcastle upon Tyne), 8–17
- Chapman, J, in press (a), The Danube re-visited, V.G. Childe, tells and settlement archaeology in the Neolithic and Copper Age of eastern Europe. In J Lech, (ed) *V. Gordon Childe and the archaeology of the twentieth century*. Warszawa. PAN Institute of Archaeology and Ethnology
- Chapman, J, in press (b), Changing gender relations in the prehistory of eastern Hungary. In J M Moore and E Scott (eds), *Invisible people and processes, writing gender and children into European prehistory*. Leicester. Leicester University Press
- Chapman, J, in press (c), ‘Landscapes in flux, introduction’. In J Chapman and P Dolukhanov, (eds), *Landscapes in flux*

- Chapman, J, in press (d), Timemarks and placemarks – the social construction of prehistoric landscapes in eastern Hungary. In G Nash (ed), *The social construction of the landscape*. Oxford. Tempvs Reparatum
- Childe, V G, 1929, *The Danube in prehistory*. Oxford. Clarendon
- Childe, V G, 1951, *Social evolution*. London. Watts & Co
- Childe, V G, 1958, *The prehistory of European society*. London. Cassell
- Christie, P M, 1963, The Stonehenge Cursus. *Wiltshire Archaeological Magazine*, 58, 370–82
- Ciaranfi, N, 1983, Osservazioni geologiche e morfologiche sull'entroterra del golfo di Manfredoni. In S M Cassano and A Manfredini (eds), *Studi sul Neolitico de Tavoliere della Puglia, indagine territoriale in un'area-campione* (=BAR International Series 160). Oxford. British Archaeological Reports. 203–222
- Clark, G, 1977, *World prehistory in new perspective* (3rd. edition). Cambridge. Cambridge University Press
- Clark, J G D, Higgs, E S, and Longworth, I H, 1960, Excavations at the Neolithic Site at Hurst Fen, Mildenhall, Suffolk, (1954, 1957 and 1958). *Proceedings of the Prehistoric Society*, 26, 202–246
- Clark, R H, and Schofield, A J, 1991, By experiment and calibration, An integrated approach to the archaeology of the ploughsoil. In A J Schofield (ed) *Interpreting Artefact Scatters, Contributions to Ploughzone Archaeology* = Oxbow Monograph 4). Oxford. Oxbow Books, 93–105
- Clarke, A F, 1982, The Neolithic in Kent, A Review. In P E Leach (ed), *Archaeology in Kent to AD1500* (=03A Research Report 48). London. Council for British Archaeology. 25–30
- Clarke, D V, Cowie, T G, and Foxon, A, 1985, *Symbols of Power*. Edinburgh. National Museum of Antiquities of Scotland
- Cleal, R, 1992, Significant Form, Ceramic Styles in the Earlier Neolithic of Southern England. In N Sharples and A Sheridan (eds), *Vessels for the Ancestors*. Edinburgh. Edinburgh University Press. 286–304
- Cleal, R M J, Walker, K E, and Montague, R, 1995, *Stonehenge in its landscape. Twentieth-century excavations* (=English Heritage Archaeological Report 10). London. English Heritage
- Coe, M, 1993, *The Maya* (fifth edition). London. Thames and Hudson
- Cohen, P S, 1968, *Modern social theory*. London. Heinemann
- Coles, B, and Coles, J, 1989, *People of the wetlands*. London. Thames and Hudson
- Coles, J, and Coles, B, 1996, *Enlarging the past*. Edinburgh. Society of Antiquaries/Wetlands Archaeological Research Project
- Coles, J M, and Harding, A F, 1979, *The Bronze Age in Europe*. London. Methuen
- Cooney, G, 1991, Irish Neolithic landscapes and landuse systems, The implications of field systems. *Rural History*, 2.2, 123–39
- Cooney, G, and Grogan, E, 1994, *Irish Prehistory, A social perspective*. Dublin. Wordwell
- Cosgrove, D, 1989, Geography is everywhere, culture and symbolism in human landscapes. In D Gregory and R Walfrid (eds), *Horizons in human geography*. London. Macmillan
- Cowley, D C, and Edwards, D N, 1988, *Callaly Moor Field Survey & Excavation, Phase Three 1988, Newcastle upon Tyne*. Archaeological Unit for North East England
- Cowley, D C, and Stevenson, A C, 1991, Fieldwork on Beanley Moor, Northumberland. *Archaeology North (CBA Group 3)*, 2 (December), 6–7
- Crawford, O G S, 1926, Notes on an air photograph of Harrow Hill. *Sussex Archaeology Collections*, LXVII, 147–8
- Cribb, R, 1991, *Nomads in archaeology*. Cambridge. Cambridge University Press
- Crothers, N, 1996, Ballyharry's game. *Archaeology Ireland*, 38, 12–14
- Cummings, W A, and Harding, A F, 1988, The petrological identification of stone implements from north-east England. In T H McK Clough and W A Cummings (eds), *Stone Axe Studies*, 2 (=CBA Research Report 67). London. Council for British Archaeology. 78–84
- Cunliffe, B, 1982, Social and Economic Development in Kent in the Pre-Roman Iron Age. In P E Leach (ed), *Archaeology in Kent to AD1500* (=CBA Research Report 48). London. Council for British Archaeology 25–30, 40–50
- Cunnington, M E, 1929, *Woodhenge. A Description of the Site as revealed by Excavations carried out there by Mr and Mrs B.H. Cunnington, 1926–7–8*. Devizes. George Simpson & Co

- Curwen, E, 1954, *The Archaeology of Sussex*. London. Methuen
- Curwen, E, and Curwen, E C, 1926, Harrow Hill Flint Mine Excavation 1924–5. *Sussex Archaeological Collections*, 67, 103–38
- Curwen, E, and Curwen, E C, 1927, Probable flint-mines near Tolmere Pond, Findon. *Sussex Notes and Queries*, (May 1927), 168–170
- Curwen, E C, 1930, Wolstonbury. *Sussex Archaeological Collections*, 71, 237–45
- Curwen, E C, 1934, Excavations at Whitehawk Camp, Brighton 1932–3. *Antiquaries Journal*, 14, 99–133
- Curwen, E C, and Williamson, RP, 1931, The date of Cissbury camp. *Antiquaries Journal*, 11, 13–36
- Czerniak, L, and Piontek, J, 1980, The socioeconomic system of European neolithic populations. *Current Anthropology*, 21, 97–100
- Daniels, S, and Cosgrove, D, 1988, Introduction, iconography and landscape. In D Cosgrove and S Daniels (eds), *The iconography of landscape*. Cambridge. Cambridge University Press. 1–10
- Darvill, T, 1987(a), *Prehistoric Britain*. London. Batsford
- Darvill, T, 1987(b), *Ancient Monuments in the Countryside* (=English Heritage Archaeological Report 5). London. English Heritage
- Darvill, T, 1996, Neolithic Buildings in England, Wales and the Isle of Man. In T Darvill and J Thomas (eds), *Neolithic Houses in Northwest Europe and Beyond* (=Neolithic Studies Group Seminar Papers 1/Oxbow Monograph 57). Oxford. Oxbow Books
- Darvill, T, Gerrard, C, and Startin, B, 1993, Identifying and protecting historic landscapes. *Antiquity*, 67, 563–74
- Davies, G, and Turner, J, 1979, Pollen Diagrams from Northumberland. *New Phytologist*, 82, 783–804
- Davies, J, 1983, The Mesolithic Sites of Northumberland. *Northern Archaeology*, 4: 2, 18–24
- Davis, S, and Payne, S, 1993, A barrow full of cattle skulls. *Antiquity* 67, 12–22
- Day, S P, 1991, Post-glacial vegetational history of the Oxford region. *New Phytologist*, 119, 445–70
- Delano Smith, C, 1987, The Neolithic environment of the Tavoliere. In G D B Jones, *Apulia. Vol 1, Neolithic Settlement in the Tavoliere*. London. Thames and Hudson
- Delano Smith, C, 1983, L'ambiente. In A Tiné, *Passo di Corvo e la civiltà neolitica del Tavoliere*. Genova. Sagep
- Dennell, N W, 1978, *Early farming in Bulgaria from the Vth to the IIIrd Millennium B. C.* (=BAR International Series 30). Oxford. British Archaeological Reports
- Dennell, N W, and Webley, D, 1975, Prehistoric settlement and land use in southern Bulgaria. In ES Higgs (ed), *Palaeoeconomy*. Cambridge. Cambridge University Press. 97–109
- Di Lernia, S, Fiorentino, G, and Galiberti, A, 1990–91, Gargano Prehistoric Flint Mines Project. The state of research in the Neolithic mine of Defensola-Vieste (Italy). *Origini*, XV, 175–199
- Drewett, P, 1975, The Excavation of an Oval Burial Mound of the Third Millennium BC at Alfriston, East Sussex, 1974. *Proceedings of the Prehistoric Society*, 41, 119–52
- Drewett, P, 1977, The Excavation of a Neolithic Causewayed Enclosure on Offham Hill, East Sussex, 1976. *Proceedings of the Prehistoric Society*, 43, 201–41
- Drewett, P, 1978, The Neolithic. In P Drewett, (ed) *The Archaeology of Sussex to AD 1500* (=CBA Research Report 29). London. Council for British Archaeology. 23–29
- Drewett, P, Rudling, D, and Gardiner, M, 1988, *The South East to AD 1000*. London. Longman
- Drury, P, 1978, *Excavations at Little Waltham 1970 – 71* (=CBA Research Report 26). London. Council for British Archaeology
- Dunning, G, 1966, Neolithic Occupation Sites in East Kent. *Antiquaries Journal*, XLVI, 1–25
- Ecsedy, I, 1972, Neolitische Siedlung in Dévavanya, Katonaföldek. *Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften*, 3, 59–63
- Eddison, J, (ed), 1995, *Romney Marsh, The Debatable Ground* (=Oxford University Committee for Archaeology Monograph no 41). Oxford. Oxford University Committee for Archaeology
- Eddison, J, and Green, C, (eds), 1988, *Romney Marsh, Evolution, Occupation, Reclamation* (=Oxford University Committee for Archaeology Monograph no 21). Oxford. Oxford University Committee for Archaeology

- Edmonds, M, 1993, Interpreting Causewayed Enclosures in the Past and in the Present. In C Tilley (ed), *Interpretative Archaeology*. Oxford. Berg. 99–142
- Edmonds, M R, 1995, *Stone Tools and Society*. London. Batsford
- Edwards, K J, and Ralston, I, 1985, Postglacial hunter-gatherers and vegetational history in Scotland. *Proceedings of the Society of Antiquaries of Scotland*, 114, 15–34
- Ellison, A, 1978, The Bronze Age of Sussex. In P Drewett (ed), *The Archaeology of Sussex to AD 1500* (= CBA Research Report 29). London. Council for British Archaeology, 30–6
- Entwhistle, R, and Grant, A, 1989, The evidence for cereal cultivation and animal husbandry in the southern British Neolithic and Bronze Age. In A Milles, D Williams and N Gardner (eds), *The beginnings of agriculture* (= BAR Supplementary Series 496). Oxford. British Archaeological Reports. 203–215
- Eogan, G, 1984, *Excavations at Knowth 1* (= Royal Irish Academy Monographs in Archaeology 1). Dublin. Royal Irish Academy
- Eogan, G, 1986, *Knowth and the passage tombs of Ireland*. London, Thames and Hudson
- Evans, C, 1988 (a), Acts of Enclosure, a Consideration of Concentrically Organised Causewayed Enclosures. In J C Barrett and I A Kinnes (eds), *The Archaeology of Context in the Neolithic and Bronze Age: Recent Trends*. Sheffield. Dept of Archaeology, University of Sheffield. 65–79
- Evans, C, 1988 (b), Excavations at Haddenham, Cambridgeshire, A “Planned” Enclosure and its Regional Affinities. In C Burgess, P Topping, C Mordant, and M Maddison, (eds) *Enclosures and Defences in the Neolithic of Western Europe* (= BAR International Series 403). Oxford, British Archaeological Reports. 127–148
- Evans, J, Rouse, A, and Sharpies, N, 1988, The Landscape Setting of Causewayed Camps, Recent Work on the Maiden Castle Enclosure. In J Barrett and I Kinnes (eds), *The Archaeology of Context in the Neolithic and Bronze Age Recent Trends*. Sheffield. Department of Archaeology. University of Sheffield, 73–84
- Evans, J G, Limbrey, S, and Cleere, H, (eds), 1975, *The effect of man on the landscape, the Highland Zone* (= CBA Research Report 11). London. Council for British Archaeology
- Evans, J G, 1984, Stonehenge – The environment in the Late Neolithic and early Bronze Age and a Beaker-Age burial. *Wiltshire Archaeological Magazine*, 78, 7–30
- Evans, J H, 1950, Kentish Megalithic Types. *Archaeologia Cantiana*, LXIII, 63–81
- Evans, M, 1995, The mollusca from the henge ditch. In A Barclay, M Gray and G Lambrick. *Excavations at the Devil's Quoits, Stanton Harcourt, Oxfordshire 1972–3 and 1988* (= Thames Valley Landscapes Series). Oxford. Oxford University Committee for Archaeology. 62–7
- Evans-Pritchard, E E, 1940, *The Nuer*. Oxford. Oxford University Press
- Fairweather, A D, and Ralston, I BM, 1993, The Neolithic timber hall at Balbridie, Grampian Region, Scotland, A preliminary note on dating and plant macrofossils. *Antiquity*, 67, 313–323
- Felder, P J, 1981, Prehistoric flint mining at Ryckholt-St. Geertruid (Netherlands) and Grimes Graves (England). In FHG Engelen (ed), *Third International Symposium on Flint, 24–27 May 1979, Maastricht. Staringa no. 6*
- Felder, P J, 1983, Plan of the Harrow Hill Prehistoric Flint Mines. In *Excursion Guide of the Fourth International Flint Symposium, Brighton*, 10–15 April 1983
- Fleming, A, 1971, Territorial patterns in Bronze Age Wessex. *Proceedings of the Prehistoric Society*, 37 (1), 138–66
- Fleming, A, 1972, The genesis of pastoralism in European prehistory. *World Archaeology*, 4, 179–91
- Flood, J, 1983, *The archaeology of the Dreamtime*. London. Collins
- Folley, R, 1981, Off-site archaeology, an alternative approach for the short-sighted. In I Hodder, G Isaac and N Hammond (eds), *Patterns of the past. Studies in honour of David Clarke*. Cambridge. Cambridge University Press. 157–184
- Fox, C, 1933, *The personality of Britain, Its influence on inhabitant and invader in prehistoric and early historic times* (Second Edition). Cardiff. National Museum of Wales
- French, C, 1990, Neolithic soils, middens and alluvium in the lower Welland valley. *Oxford Journal of Archaeology*, 9, 305–12
- Frodsham, P, and Rushton, S, 1994, Yet more Rock Art in Northumberland, *Archaeology in Northumberland 1993–1994*. Morpeth. Northumberland County Council. 5

- Gamble, C, 1991, An introduction to the living spaces of mobile peoples. In C S Gamble and W A Boismier (eds), *Ethnoarchaeological approaches to mobile campsites, hunter-gatherer and pastoralist case studies*. Ann Arbor. International Monographs in Prehistory. 1–23
- Gamble, C S, and Boismier, W A, (eds), 1991, *Ethnoarchaeological approaches to mobile campsites, hunter-gatherer and pastoralist case studies*. Ann Arbor, International Monographs in Prehistory
- Gardiner, J, 1984, Lithic Distributions and Settlement Patterns in Central Southern England. In R Bradley and J Gardiner (eds), *Neolithic Studies* (=BAR British Series 133). Oxford. British Archaeological Reports. 15–40
- Gardiner, J, 1987, Tales of the Unexpected, Approaches to the Assessment and Interpretation of Museum Flint Collections. In A Brown and M Edmonds (eds), *Lithic Analysis and Later British Prehistory* (=BAR British Series 162). Oxford. British Archaeological Reports
- Gardiner, J, 1988, *The Composition and Distribution of Neolithic Surface Flint Assemblages in Central Southern England*. Unpublished PhD Thesis. University of Reading
- Gardiner, J, 1990, Flint Procurement and Neolithic Axe Production on the South Downs, A Reassessment. *Oxford Journal of Archaeology*, 9, 119–40
- Gardiner, M, 1990, The Archaeology of the Weald – A Survey and Review. *Sussex Archaeological Collections*, 128, 33–53
- Garton, D, 1987, Buxton. *Current Archaeology*, IX, 250–3
- Garton, D, 1991, Neolithic settlement in the Peak District, Perspective and prospective. In R Hodges and K Smith (eds), *Recent developments in the archaeology of the Peak District*. Sheffield. Department of Archaeology and Prehistory, Sheffield University. 3–22
- Gates, T, 1982, A Long Cairn on Dod Hill, Ilderton, Northumberland. *Archaeologia Aeliana*, 5th Series, 10, 210–211
- Gates, T, 1983, Unenclosed Settlements in Northumberland. In J C Chapman and H C Mytum (eds), *Settlement in North Britain 1000BC –AD1000* (=BAR British Series 118). Oxford. British Archaeological Reports. 103–148
- Gerloff, S, 1974, The Early Bronze Age Daggers in Great Britain and a Reconsideration of the Wessex Culture. München. *Prähistorische Bronzefunde*, VI, 2
- Gibson, A, 1986, *Neolithic and Early Bronze Age Pottery*. Princes Risborough. Shire Publications
- Gibson, A, 1992, Approaches to the later Neolithic and Bronze Age settlement of Britain. *Colloque international de Lons-le-Saunier, 16–19 mai 1990*, 41–8
- Giddens, A, 1984, *The Constitution of Society*. Cambridge. Polity Press
- Gillings, M, 1995, Flood dynamics and settlement in the Tisza valley of north-east Hungary, GIS and the Upper Tisza Project. In G Lock and Z Stancic, (eds), *Archaeology and Geographical Information Systems, a European perspective*. London. Taylor & Francis. 67–84
- Giot, P-R, L'Helgouach, J, and Monnier, J-L, 1979, *Préhistoire de la Bretagne*. Rennes. Ouest-France.
- Glass, P, 1988, Trobriand symbolic geography. *Man* (NS), 23, 56–76
- Godfray, A D B, and Burdo, C, 1949, Excavations at the Pinnacle, Parish of St Ouen, Jersey, 1930– 36. *SociétéJersiaise Annual Bulletin*, 15, 21–100
- Godwin, H, 1962, Vegetational history of the Kentish Chalk Downs as seen at Wingham and Frogholt. *Veröffentlichungen Geobotanischen Institutes* 37. Zurich. Stiftung Rubel. 83–99
- Goodman, C, 1924, Blackpatch Flint Mine Excavation 1922. *Sussex Archaeological Collections*, 65, 69– 111
- Gosden, C, and Head L, 1994, Landscape – a usefully ambiguous concept. *Archaeology in Oceania*, 29:3, 113–116
- Gould, R, 1977, Ethno-archaeology; or, where do models come from? In Wright R S V (ed) *Stone tools as cultural markers*
- Gravina, A, 1980, L'eneolitico e l'età del Bronzo del bacino del Basso Tavoliere della Daunia nor occidentale. Cenni di Topografia. *Atti del II Convegno sulla Preistoria, Proristoria e storia della Daunia*. San Severo. 27–46
- Gregory, D, 1994, *Geographical imaginations*. Oxford. Blackwell
- Grogan, E, 1996, Neolithic houses in Ireland. In T Darvill and J Thomas (eds), *Neolithic houses in northwest Europe and beyond* (=Oxbow Monograph 57). Oxford. Oxbow. 41–60
- Grundmann, K, 1932, Aus neolithischen Siedlungen bei Larisa. *Archäologische Mitteilungen*, 57, 102–123

- Guido, M, and Smith, I, 1982, Figsbury Rings, A Reconsideration of the Inner Enclosure. *Wiltshire Archaeological and Natural History Magazine*, 76, 21–5
- Hägerstrand, T, 1975, Space, time and human conditions. In A Karlqvist (ed), *Dynamic allocation of urban space*. Farnborough. Saxon House
- Halén, O, 1994, *Sedentariness during the Stone Age of northern Sweden*. Stockholm. Acta Archaeologica Lundensia
- Hall, D, and Coles, J, 1994, *Fenland Survey. An essay in landscape and persistence* (= English Heritage Archaeological Reports 1). London. English Heritage
- Halliday, S P, 1993, Marginal agriculture in Scotland. In TC Smout (ed), *Scotland Since Prehistory*. Aberdeen. Scottish Cultural Press, 64–78
- Halpin, E, 1995, Excavations at Newtown, Co. Meath. In E Grogan and C Mount (eds), *Annus Archaeologiae. Dublin. Organisation of Irish Archaeologists*. 45–54
- Harding, A F, 1981, Excavations in the prehistoric ritual complex near Milfield, Northumberland. *Proceedings of the Prehistoric Society*, 47, 87–136
- Harding, A F, and Lee, G, 1987, *Henge Monuments and Related Sites of Great Britain* (= B AR British Series 175). Oxford. British Archaeological Reports
- Harding, J, 1995, Social histories and regional perspectives in the Neolithic of lowland England. *Proceedings of the Prehistoric Society*, 61, 117–36
- Harrison, J, 1877, Report on some Further Discoveries at Cissbury. *Journal of the Royal Anthropological Institute*, 6, 430–8
- Harrison, J, 1878, Additional Discoveries at Cissbury. *Journal of the Royal Anthropological Institute*, 7, 412–33
- Hartványi, B P, and Novaki, Gy, 1975, Samen-und Fruchtfunde in Ungarn von der Jungsteinzeit bis zum 18. Jahrhundert. *Agrártörténete Szemle*, 17, 1–22 (Supplement)
- Hawkes, J, 1937, *The Neolithic of the Channel Islands. The Bailiwick of Jersey*. Jersey. Société Jersiaise
- Hayward, T, 1995, *Ecological Thought*. Cambridge. Polity Press
- Healy, F, 1987, Prediction or prejudice? The relationship between field survey and excavations. In A Brown and M R Edmonds (eds) *Lithic Analysis and Later British Prehistory*. (= B AR British Series 162). Oxford. British Archaeological Reports. 9–17
- Hedges, J D, and Buckley, D G, 1978, Excavations at a Neolithic Causewayed Enclosure, Orsett, Essex, 1975. *Proceedings of the Prehistoric Society*, 44, 219–308
- Hedges, J D, 1980, The Neolithic in Essex. In D G Buckley (ed) *Archaeology in Essex to AD 1500* (= CBA British Series 34). London. Council for British Archaeology. 26–40
- Hedges, J D, and Buckley, D G, 1981, *Springfield Cursus and the Cursus Problem* (= Essex County Council Occasional Paper 1). Chelmsford. Essex County Council
- Heinselman, M L, 1981, Fire regimes and ecosystem properties. In US Department of Agriculture, Forest Service, *Fire Regimes and Ecosystem Properties, Proceedings of the Conference* (= General Technical Report WO-26). Oregon. Portland. 7–57
- Helms, M W, 1988, *Ulysses' sail. An ethnographic odyssey of power, knowledge and geographical distance*. Princeton. Princeton University Press
- Hibbs, J L, 1986, Post-Depositional Transforms and the Megalithic Distributions of the Channel Islands. In P Johnston (ed), *The Archaeology of the Channel Islands*. Chichester. Phillimore. 207–224
- Hobsbawm, E, and Ranger, T, (eds), 1983, *The invention of tradition*. Cambridge. Cambridge University Press
- Hodder, I, 1982, *Symbols in action*. Cambridge. Cambridge University Press
- Hodder, I, 1984, Burials, houses, women and men in the European Neolithic. In D Miller and C Tilley (eds), *Ideology, power and prehistory*. Cambridge. Cambridge University Press, 51–68
- Hodder, I, 1987, Converging traditions, The search for symbolic meanings in archaeology and geography. In M Wagstaff (ed), *Landscape and culture*. Oxford. Blackwell. 134–45
- Hodder, I, 1990, *The Domestication of Europe*. Oxford. Blackwell
- Hogg, A H A, and O' Neil, BHSt J, 1937, A Causewayed Enclosure in West Kent. *Antiquity* 11, 223–5
- Hogg, A H A, O' Neil, BHStJ, and Stevens, C E, 1941, Earthworks on Hayes and West Wickham Commons. *Archaeologia Cantiana*, LIV, 28–34

- Hogg, A H A, 1981, The Causewayed Earthwork and Elizabethan Redoubt on West Wickham Common. *Archaeologia Cantiana*, XCVII, 71–8
- Holden, E, 1972, A Bronze Age Cemetery Barrow on Itford Hill, Beddingham. *Sussex Archaeological Collections*, 110, 70–117
- Holgate, R, 1981, The Medway Megaliths and Neolithic Kent. *Archaeologia Cantiana*, XCVII, 221–234
- Holgate, R, 1988, *Neolithic Settlement of the Thames Basin* (=BAR British Series 194). Oxford. British Archaeological Reports
- Holgate, R, 1991, *Prehistoric Flint Mines*. Princes Risborough. Shire
- Holleyman, G, 1937, Harrow Hill Excavations 1936. *Sussex Archaeological Collections*, 78, 230–51
- Horsfield, T, 1824, *The History and Antiquities of Lewes*. Privately Printed
- Horvath, F, 1991, Vinča culture and its connections with the South East Hungarian Neolithic, a comparison of Cl 4 and traditional chronology. *Banatica*, 11, 259–273
- Horvath, F, and Hertelendi, E, 1995, Contribution to the 14C based absolute chronology of the Early and Middle Neolithic Tisza region. A *Jósa András Múzeum Evkönyve*, XXXVI, 111–133
- Howard, P, 1991, *Landscapes. The artists' vision*. London. Routledge
- Hoyle, F, 1972, *From Stonehenge to modern cosmology*. San Francisco. W H Freeman and Company
- Hubert, J, 1994 Sacred beliefs and beliefs in sacredness. In D L Carmichael, J Hubert, B Reeves and A Schanche (eds), *Sacred sites, Sacredplaces* (=One World Archaeology Series 23). London. Roudedge. 9–19
- Hugh-Jones, S, 1979, *From the Milk River, Spatial and temporal processes in Northwest Amazonia*. Cambridge. Cambridge University Press
- Hugh-Jones, S, 1995, Inside-out and back-to-front, the androgynous house in Northwest Amazonia. In J Carsten and S Hugh-Jones (eds) *About the house, Lévi-Strauss and beyond*. Cambridge. Cambridge University Press, 226–52
- Ingold, T, 1986, *The Appropriation of Nature, Essays on human ecology and social relations*. Manchester. Manchester University Press
- Innes, J B, and Shennan, I, 1991, Palynology of Archaeological and Mire Sediments from Dod, Borders Region, Scotland. *The Archaeological Journal*. 148, 1–45
- James, J, 1995, Shuttle radar maps Ancient Angkor. *Science*, 267, 965
- Jarai-Komlodi, M, 1987, Postglacial climate and vegetation history in Hungary. In M Pecsí and L Kordos (eds), *Holocene environment in Hungary*. INQUA XII Congress. Budapest. MTA Geographical Research Institute. 37–48
- Jarman, M R, and Webley, D, 1975, Settlement and land-use in Capitanata, Italy. In E S Higgs, *Palaeoeconomy*. Cambridge. Cambridge University Press. 177–221
- Jarman, M R, Bailey, G N, and Jarman, H N, 1982, *Early European Agriculture*. Cambridge. Cambridge University Press
- Jerem, E, Kiss, Zs, Pattantyús, M, and Varga, A, 1992, The combined use of archaeometric methods preceding the excavation of archaeological sites. In S Bökönyi (ed), *Cultural and landscape changes in South East Hungary*. Reports on the Gyomaendrod Project. *Archaeolingua* I. Budapest. MTA Institute of Archaeology. 61–98
- Jessup, R F, 1930, *The Archaeology of Kent*. London. Methuen & Co
- Jessup, R F, 1970, *South East England*. London. Thames and Hudson
- Jobey, G, 1972, Notes on additional early settlements in Northumberland. *Archaeologia Aeliana*, 4th Series, L, 71–80
- Johnson, D H, 1994, *Nuer prophets. A history of prophecy from the Upper Nile in the nineteenth and twentieth centuries*. Oxford. Clarendon Press
- Jones, G D B, 1987, *Apulia Vol I, Neolithic Settlement in the Tavoliere*. London. Thames and Hudson
- Jones, R L, Keen, D H, Birnie, J F, and Holyoak, D T, 1987, Holocene Sea-Level Changes on Jersey. *Progress in Oceanography*, 18, 177–204
- Jones, R L, Keen, D H, Birnie, J F, and Waton, P V, 1989, *The Past Landscapes of Jersey, Changes over the last Ten Thousand Years*. Jersey, Société Jersiaise
- Kalicz, N, and Raczky, P, 1987, The Late Neolithic of the Tisza region. A survey of recent

- archaeological research. In P Raczky (ed), *The Late Neolithic in the Tisza region*. Budapest-Szolnok. Szolnok County Museums. 11–30
- Kelley, K B, and Francis, H, 1994, *Navajo Sacred Places*. Bloomington. Indiana University Press
- Kelly, R L, 1992, Mobility/sedentism, concepts, archaeological measures, and effects. *Annual Review of Anthropology*, 21, 43–66
- Kendrick, T D, 1928, *The Archaeology of the Channel Islands. Vol.I, The Bailiwick of Guernsey*. London. Methuen
- Kenward, R, 1982, A Neolithic Burial Enclosure at New Wintles Farm. In H J Case and A W R Whittle (eds), *Settlement Patterns in the Oxford Region, excavations at the Abingdon causewayed enclosure and other sites*. Oxford. CBA and Dept of Antiquities, Ashmolean Museum. 51–4
- Kern, S, 1983, *The culture of time and place, 1880–1918*. Cambridge, Mass. Harvard University Press
- Kertész, R, Sümegi, P, Kozak, M, Félegyházi, E, and Hertelendi, E, 1995, Mesolithikum im nördlichen Teil der Grossen Ungarischen Tiefebene. *A Jóna András Museum Evkönyve*, XXXVI, 15–61
- Kinnes, I A, 1979, *Round Barrows and Ring-ditches in the British Neolithic*. (=British Museum Occasional Paper 7). London. British Museum

- Kinnes, I A, 1982, Les Fouaillages and Megalithic Origins. *Antiquity*, 56, 24–30
- Kinnes, I A, 1985, Circumstance not context, The Neolithic of Scotland as seen from the outside. *Proceedings of the Society of Antiquaries of Scotland*, 115, 15–57
- Kinnes, I A, 1988, The cattleship Potemkin, The first Neolithic in Britain. In J C Barrett and I A Kinnes (eds), *The archaeology of context in the Neolithic and Bronze Age: Recent Trends*. Sheffield. Department of Archaeology and Prehistory, University of Sheffield. 2–8, 30–41
- Kinnes, I A, 1992, *Non-Megalithic Long Barrows and Allied Structures in the British Neolithic* (= British Museum Occasional Paper 52). London. British Museum
- Kinnes, I A, and Hibbs, J L, 1988, *The Dolmens of Jersey*. Jersey, La Haule Books/Channel Television
- Kovács, T, (ed), 1994, *Treasures of the Hungarian Bronze Age*. Budapest. Hungarian National Museum
- Kruk, J, 1980, *The Neolithic settlement of southern Poland*. Oxford. British Archaeological Reports
- Küchler, S, 1993, Landscape as memory, the mapping of process and its representation in a Melanesian society. In B Bender (ed), *Landscape, politics and perspectives*. Oxford. Berg. 85–106
- Kuper, A, 1988, *The invention of primitive society*. London. Routledge
- Lamb, H H, 1977, *Climate, Past, Present and Future*. Vol 2. London. Menthuen
- Lambrick, G, 1992, Alluvial Archaeology of the Holocene in the Upper Thames basin 1971–1991, a review. In S Needham and MG Macklin (eds) *Alluvial Archaeology in Britain* (= Oxbow Monograph 27). Oxford. Oxbow, 209–226
- Lane Fox, A H, 1876, Excavations at Cissbury Camp, Sussex. *Journal of the Anthropological Institute*, 5, 357–90
- Lane Fox, A H, 1869, Further remarks on the hillforts of Sussex, being an account of the excavations at Cissbury and Highdown, *Archaeologia*, 42, 27–52
- Last, J, 1996, Neolithic houses – a central European perspective. In T Darvill and J Thomas (eds), *Neolithic houses in northwest Europe and beyond* (= Oxbow Monograph 57). Oxford. Oxbow. 27–40
- Laughlin, B, 1994, *An Everyday Story of Country Folk? An Archaeological Survey of Rogers Farm, Findon, West Sussex*. Unpublished BSc Dissertation. Bournemouth University
- Leach, P E, (ed) 1982, *Archaeology in Kent to AD 1500* (= CBA Research Report no. 48). London. Council for British Archaeology
- Lee, R B, and DeVore, I, (eds) 1968, *Man the hunter*. Chicago. Aldine
- Leeds, E T, 1934, Recent Bronze Age discoveries in Berkshire and Oxfordshire. *Antiquaries Journal*. 14, 264–276
- Leeds, E T, 1938, Beakers of the Upper Thames District. *Oxoniensia*, 3, 7–30
- Leeds, E T, 1940, New discoveries of Neolithic pottery in Oxfordshire. *Oxoniensia*, 5, 1–12
- Lewis, H T, 1980, Indian Fires of Spring. *Natural History*, 89, 76–78 and 82–83
- Lewis, H T, 1985, Why Indians burned, Specific versus general reasons. In J E Lotan, B M Kilgore, W C Fischer and R W Mutch (eds), *U.S. Department of Agriculture Proceedings, Symposium and Workshop on Wilderness Fire*. Missoula, Montana. Intermountain Forest and Range Experiment Station, Forest Service, 75–86
- Lewis, H T, and Ferguson, T A, 1988, Yards, Corridors and Mosaics, How to Burn a Boreal Forest. *Human Ecology*, 16, 57–77
- Lieberman, D E, 1993, The rise and fall of seasonal mobility among hunter-gatherers. The case of the southern Levant. *Current Anthropology*, 34, 599–631
- Limbrej, S, and Evans, J G, (eds), 1978, *The effect of man on the landscape, the Lowland Zone* (= CBA Research Report 21). London. Council for British Archaeology
- Lofthouse, C A, 1993, Segmented embanked pit-alignments in the North York Moors. *Proceedings of the Prehistoric Society*, 59, 383–392
- Longworth, I H, Wainwright, G J, and Wilson, K E, 1971, The Grooved Ware site at Lion Point, Clacton. *British Museum Quarterly*, 35, 93–124
- Longworth, I H, 1960, Pottery. In J G D Clark Excavation at the Neolithic Site at Hurst Fen, Mildenhall, Suffolk. *Proceedings of the Prehistoric Society*, 26, 202–245
- Longworth, I H, 1990, Neolithic pottery, time to take another look. *Scottish Archaeological Review*, 7, 77–7

- Louwe Kooijmans, L P, 1991, An early Bandkeramic settlement and a Roman cemetery at Geleen-Janskamperveld (Netherlands). *Notae Praehistoricae*, 11, 63–5
- Macklin, M G, Passmore, D G, Stevenson, A C, Cowley, D, Edwards, D N, and O'Brien, C F, 1991, Holocene alluviation and land-use change on Callaly Moor, Northumberland. *UK Journal of Quaternary Science*, 6(3), 225–232
- Macpherson Grant, N, 1992, A Review of Late Bronze Age Pottery from East Kent. In *Canterbury's Archaeology, Canterbury Archaeological Trust 16th Annual Report*, 55–63
- Makkay, J, 1981, Painted pottery of the Körös-Starcevo culture from Szarvas, Site No. 23. *Acta Archaeologica Carpathica*, XXI, 95–103
- Makkay, J, 1990, The Proto-Vinca problem – as seen from the northernmost frontier. In D Srejovic and N Tasic (eds), *Vinca i njen svet*. Beograd. SAN Institute of Historical Sciences Symposia LI. 113–122
- Makkay, J, 1992, Excavations at the Körös culture settlement of Endrod-Öregeszolok 119. In S Bökönyi (ed), *Cultural and landscape changes in South East Hungary I. Reports on the Gyomaendrod Project*. Archaeolingua I. Budapest. MTA Institute of Archaeology. 121–194
- Mallory, J P, and McNeill, T E, 1991, *The Archaeology of Ulster*. Belfast. Institute of Irish Studies, The Queen's University of Belfast
- Malone, C, 1985, Pots, prestige and ritual in the Neolithic of southern Italy. In C Malone and S Stoddart (eds), *Papers in Italian Archaeology IV, Part ii* (=BAR International Series 244). Oxford. British Archaeological Reports. 118–151
- Marcolongo, B, and Palmieri, A M, 1990–91, Aspetti Geomorfologici e Insediamenti nel Neolitico del Tavoliere. *Origini*, XV, 219–229
- Mason, S, 1995, Conference Reviews –Neolithic Studies Group Autumn Meeting, Domestic Settlement and the Landscape. *Papers from the Institute of Archaeology*, 6 (Spring 1995), 76–9
- Massey, D, 1994, *Space, place and gender*. Cambridge, Polity Press
- McGlade, J, 1995, Archaeology and the ecodynamics of human-modified landscapes. *Antiquity*, 69, 113–134
- Meier-Arendt, W, (ed), 1992, *Bronzezeit in Ungarn. Forschungen in Tell-Siedlungen an Donau und Theiss*. Frankfurt. Museum für Vor- und Früh-Geschichte
- Mellars, P, 1976, Fire ecology, animal populations and man, a study of some ecological relationships in prehistory. *Proceedings of the Prehistoric Society*, 42, 15–45
- Mellars, P, and Reinhardt, S C, 1978, Patterns of Mesolithic land use in southern Britain, a geological perspective. In P Mellars (ed). *The early post-glacial settlement of northern Europe*. London
- Mercer, R, 1980, *Hambledon Hill, A Neolithic Landscape*. Edinburgh. Edinburgh University Press
- Mercer, R, 1981, *Grimes Graves, Norfolk, excavations 1971–72, Vol 1* (=Department of the Environment Archaeological Report No 11). London. HMSO
- Mercer, R, 1988, Hambledon Hill, Dorset, England. In C Burgess, P Topping, C Mordant, and M Maddison, (eds), *Enclosures and Defences in the Neolithic of Western Europe Brit* (=BAR International Series 403). Oxford. British Archaeological Reports. 89–106
- Mercer, R, 1990, *Causewayed Enclosures*. Princes Risborough, Shire Publications
- Mercer, R, and Tipping, R, 1994, The Prehistory of Soil Erosion in the Northern and Eastern Cheviot Hills, Anglo-Scottish Borders. In S Foster and T C Smout (eds), *The History of Soils and Field Systems*. Aberdeen. Scottish Cultural Press. 1–25
- Mitchell, G F, 1989, *Man and Environment in Valencia Island*. Dublin. Royal Irish Academy
- Modderman, P J R, 1971, Bandkeramiker und Wandbauerntum. *Archäologisches Korrespondenzblatt*, 1, 7–9
- Moffet, L, Robinson, M A, and Straker, V, 1989, Cereals, fruit and nuts: charred plant remains from Neolithic sites in England and Wales and the Neolithic economy. In A Milles, D Williams and N Gardner (eds), *The Beginnings of Agriculture* (=BAR International Series 496). Oxford. British Archaeological Reports. 243–61
- Molloy, K, and O'Connell, M, 1995, Palaeoecological investigations towards the reconstruction of environment and land-use changes during prehistory at Céide Fields, western Ireland. *Probleme der Küstenforschung im südlichen Nordseegebiet*, 23, 187–225
- Monk, M, 1988, Archaeobotanical study of samples from pipeline sites. In M Gowen, *Three*

- Irish gas pipelines, New archaeological evidence in Munster*. Dublin. Wordwell, 185–91
- Moore, J, in press, *Who lights the fire? Gender and the energy of production*. Paper presented to the Gender and Material Culture conference, 4–6 July, 1994. Exeter
- Morphy, H, 1993, Colonialism, history and the construction of place, the politics of landscape in Northern Australia. In B Bender (ed), *Landscape, politics and perspectives*. Oxford, Berg, 205–244
- Mortimer, R N, 1983, Harrow Hill Prehistoric Flint Mines. *Fourth International Flint Symposium Guide*
- Müller, J, 1988, Cultural definition of the Early Neolithic and its interaction in the eastern Adriatic. *Berytus*, XXXVI, 101–125
- Murphy, P, forthcoming, Environmental Archaeology in Essex. In O Bedwin (ed), *Archaeology in Essex. Proceedings of the 1993 Writtle Conference*
- Nandris, J, 1972, Relations between the Mesolithic, the First Temperate Neolithic and the Bandkeramik, the nature of the problem. *Alba Julia*, VI, 61–70
- Needham, S, 1987, The Bronze Age. In J Bird and D G Bird (eds), *The Archaeology of Surrey to 1540 AD*, Guildford. Surrey Archaeological Society. 97–137
- Needham, S, and Trott, M, 1987, Structure and sequence in the Neolithic deposits at Runnymede. *Proceedings of the Prehistoric Society*, 53, 479–82
- Needham, S, and Macklin, M G, (eds) 1992, *Alluvial Archaeology in Britain* (=Oxbow Monograph 27). Oxford, Oxbow Monograph
- Nicolle, E T, and Sinel, J, 1914, Archaeological researches at La Motte. *Société Jersiaise Annual Bulletin*, 7, 241–245 and 450–451
- O'Hare, GB, 1990, A preliminary study of polished stone artifacts in prehistoric southern Italy. *Proceedings of the Prehistoric Society*, 56, 124–152
- O'Kelly, M J, Cleary, R M and Lehan, D, 1983, *Newgrange, Co Meath, Ireland, The Late Neolithic/Beaker Period Settlement* (=BAR International Series 190). Oxford, British Archaeological Reports
- O'Kelly, M J, 1982, *Newgrange, Archaeology, art and legend*. London. Thames and Hudson
- Odetti, G, 1975, Foto aerea e villaggi neolitici nel Tavoliere. In S Tiné (ed) *Civiltà preistoriche e protoistoriche della Daunia*. Florence. 133–136
- Ortiz, A, 1969, *The Tewa World*. Chicago. University of Chicago Press
- Palmer, N, 1980, A Beaker Burial and Medieval Tenements in the Hamel, Oxford. *Oxoniensis* 45, 124–225
- Palmer, S, 1970, The stone age industries of the Isle of Portland, Dorset, and the utilization of Portland chert as artefact material in southern England. *Proceedings of the Prehistoric Society*, 36, 82–115
- Parker Pearson, M, and Richards, C, 1994, Ordering the world, Perceptions of architecture, space and time. In M Parker Pearson and C Richards (eds), *Architecture and order, Approaches to social space*. London. Routledge. 1–37
- Parker Pearson, M, 1993, *Bronze Age Britain*. London. Batsford/English Heritage
- Parsons, T, and Shils, E A, (eds), 1951, *Toward a general theory of action*. New York. Harvard University Press
- Parsons, T, 1951, *The social system*. London. Routledge and Kegan Paul
- Patton, M A, 1988, The Bronze Age Settlement of La Moye I, Jersey. Excavations 1981–85. *Société Jersiaise Annual Bulletin*, 24, 543–566
- Patton, M A, 1990, Neolithic Stone Rings from the Channel Islands. *Société Jersiaise Annual Bulletin*, 25, 347–352
- Patton, M A, 1991(a), An Early Neolithic axe factory at Le Pinacle, Jersey, Channel Islands. *Proceedings of the Prehistoric Society*, 57, 51–59
- Patton, M A, 1991(b) Stone Axes of the Channel Islands, Neolithic Exchange in an Insular Context. *Oxford Journal of Archaeology*, 10, 33–43
- Patton, M A, 1993, *Statements in Stone, Monuments and Society in Neolithic Brittany*. London, Routledge
- Patton, M A, 1995(a), *Neolithic Communities of the Channel Islands* (=BAR British Series 240). Oxford. British Archaeological Reports
- Patton, M A, 1995(b), New Light on Atlantic Seaboard Passage Grave Chronology, Radiocarbon Dates from La Hougue Bie (Jersey). *Antiquity*, 264, 582–586

- Payne, G, 1880, Celtic Remains Discovered at Grovehurst in Milton-Next-Sittingbourne. *Archaeologia Cantiana*, XIII, 122–6
- Pennington, W, 1970, Vegetation history in the north-west of England, a regional synthesis. In D Walker and R G West (eds), *Studies in the vegetational history of the British Isles*. Cambridge. Cambridge University Press. 41–79
- Perlès, C, 1992, Systems of exchange and organisation of production in Neolithic Greece. *Journal of Mediterranean Archaeology*, 5/2, 115–164
- Peterken, G F, 1993, *Woodland Conservation and Management*. Second edition. London. Chapman and Hall
- Peterken, G F, 1995, *Natural Woodland. Ecology and Conservation in Northern Temperate Regions*. Cambridge. Cambridge University Press
- Philp, B, 1981, A Survey of the Medway Megaliths. *Kent Archaeological Review*, no. 64, 77–92
- Philp, B, and Dutton, M, 1985, *The Medway Megaliths*. Dover. KARU
- Pickett, S T A, and White, P S, (eds), 1985, *The Ecology of Natural Disturbance and Patch Dynamics*. Orlando. Academic Press
- Pitt Rivers, A, 1869, Further Remarks on the Hillforts of Sussex, Being an Account of Excavations in the Forts of Cissbury and Highdown. *Archaeologia*, 42, 53–76
- Pitt Rivers, A, 1875, Excavations in Cissbury Camp, Sussex. *Journal of the Royal Anthropological Institute*, 5, 357–90
- Pollard, J, 1992, The Sanctuary, Overton Hill, Wiltshire, A Re-examination. *Proceedings of the Prehistoric Society*, 58, 213–226
- Pred, A, 1986, *Place, practice and structure. Social and spatial transformations in South Sweden, 1750–1850*. Totowa. N J Barnes and Noble Books
- Price, T D, 1987, The Mesolithic of Western Europe. *Journal of World Prehistory*, 1, 225–305
- Pryor, F, 1974, *Excavation at Fengate, Peterborough, England: the First Report* (= Royal Ontario Museum Archaeological Monograph 3)
- Pryor, F, 1988, Earlier Neolithic organised landscapes and ceremonial in lowland Britain. In J C Barrett and I A Kinnes (eds) *The Archaeology of Context in the Neolithic and Bronze Age: Recent Trends*. Sheffield. John Collis Publications. 63–72
- Pryor, F, 1993, Excavations at Site 11, Fengate, Peterborough 1969. In *The Fenland Project Number 7, Excavations in Peterborough and the Lower Welland Valley 1960–69*. East Anglian Archaeology 61, 127–140
- Pryor, F, French, C, Crowther, D, Gurney, D, Simpson, G, and Taylor, M, 1985, *Archaeology and Environment in the Lower Welland Valley*. East Anglian Archaeology 27
- Pull, J, 1932, The Flint miners of Blackpatch. London. Williams and Norgate
- Pull, J, 1933, Some Discoveries at Findon: vi The Flint Mines. *Sussex County Magazine*, 7, 810–4
- Pull, J, 1953, Further Discoveries at Church Hill, Findon. *Sussex County Magazine*, 27, 15–21
- Pull, J, and Sainsbury, C, 1928(a) The Round Barrows of Blackpatch, Finds From Barrow No 3. *The Herald Magazine*, April 28th
- Pull, J, and Sainsbury, C, 1928(b) The Round Barrows of Blackpatch, Barrow No 4. *The Herald Magazine*, May 5th
- Pull, J, and Sainsbury, C, 1928(c) The Round Barrows of Blackpatch, The Relative Age of the Barrows and Flint Mines. *The Herald Magazine*, June 23rd.
- Pull, J, and Sainsbury, C, 1929(a), The Flint Miners of Blackpatch 1, Barrow No 5. *Worthing Herald*, April 20th
- Pull, J, and Sainsbury, C, 1929(b), The Flint Miners of Blackpatch 2, Barrow No 6. *Worthing Herald*, April 27th
- Pull, J, and Sainsbury, C, 1930, Further Discoveries at Blackpatch 2, Barrow No 9. *Worthing Herald*, June 7th
- Pyne, S, 1991, Sky of Ash, Earth of Ash, A Brief History of Fire in the United States. In J Levine (ed), *Global Biomass Burning*. Massachusetts Institute of Technology. 504–511
- Quojani, F, 1983, Rinvenimenti eneolitici e de'età del bronzo. In S M Cassano and A Manfredini (eds), *Studi sul Neolitico de Tavoliere della Puglia, indagine territoriale in un'area-campione* (=BAR International Series 160). Oxford. British Archaeological Reports, 269–292
- Rackham, O, 1986, *The History of the Countryside*. London. J M Dent

- Raczky, P, 1978, Öcsöd-Kováshalom. A settlement of the Tisza culture. In P Raczky (ed), *The Late Neolithic in the Tisza region*. Budapest-Szolnok. Szolnok County Museums. 61–83
- Raczky, P, 1983, Origins of the custom of burying the dead inside houses in South-East Europe. *Szolnok Megyei Múzeumi Évkönyv*, 5–10
- Raczky, P, 1988, *A Tisza-vidék kulturális és kronológiai kapcsolatai a Balkánnal és Egeikummal a neolitikum, rézkor időszakában*. Szolnok. Szolnok County Museums
- Raczky, P, 1994, *The M-3 rescue project in County Hajdú-Bihar*. Paper presented to the Hungarian Motorway Rescue Archaeology Conference, January 1994. Budapest. ELTE
- Raczky, P, (ed), 1987, *The Late Neolithic in the Tisza region*. Budapest-Szolnok. Szolnok County Museums
- Raczky, P, Meier-Arendt, W, Kurucz, K, Hajdú, Zs, and Sikora, A, 1995, A Late Neolithic settlement in the Upper Tisza region and its cultural connections (preliminary report). A Jósa András Múzeum Évkönyve, XXXVI, 231–240
- Rady, J, 1990, Channel Tunnel Excavations. *Canterbury's Archaeology 1988–9*. Canterbury, Canterbury Archaeological Trust. 36–42
- Rappaport, R A, 1967, *Pigs for the ancestors, ritual in the ecology of a New Guinea people*. New Haven and London. Yale University Press
- Ratcliffe-Densham, H B A, and Ratcliffe-Densham, M M, 1953, A Celtic farm on Blackpatch Hill. *Sussex Archaeological Collections*, 91, 69–83
- RCHM(E), 1979, *Stonehenge and its Environs. Monuments and Land Use*. Edinburgh. Edinburgh University Press
- RCHME, 1989, *The Classification of Cropmarks in Kent, A Report for the Monuments Protection Programme*. London. RCHME/APU
- RCHME, forthcoming, *The Neolithic Flint Mines of England*
- Reidy, K, 1995, Smallands Hall, Hatfield Peverel. In P Gilman and A Bennet, (eds), *Archaeology in Essex. Essex Archaeology and History*, 26, 244
- Renfrew, C, 1969, Trade and culture process in European prehistory. *Current Anthropology*, 10, 151–169
- Renfrew, C, 1976, Megaliths, territories and populations. In SJ de Laet (ed), *Acculturation and continuity in Atlantic Europe*. Bruges, de Tempel. 198–220
- Renouf, J T, and Urry, J, 1976, *The First Farmers in the Channel Islands*, The Neolithic in an Insular Context. Jersey. States of Jersey Education Department
- Richards, C, 1990, The late Neolithic house in Orkney. In R Samson (ed), *The social archaeology of houses*. Edinburgh. Edinburgh University Press. 111–24
- Richards, C, 1993, Monumental choreography, Architecture and spatial representation in Late Neolithic Orkney. In C Tilley (ed), *Interpretative Archaeology*. Oxford. Berg. 143–78
- Richards, C, and Thomas, J, 1984, Ritual activity and structured deposition in Later Neolithic Wessex. In R Bradley and J Gardiner (eds), *Neolithic Studies. A Review of some Current Research* (= BAR British Series 133). Oxford. British Archaeological Reports. 189–218
- Richards, J, 1984, The development of the Neolithic landscape in the Environs of Stonehenge. In R Bradley and J Gardiner (eds) *Neolithic studies. A review of some current research* (= BAR British Series 133). Oxford. British Archaeological Reports. 177–188
- Richards, J, 1990, *The Stonehenge Environs Project* (= Historic Buildings and Monuments Commission for England Archaeological Report 16). London. English Heritage
- Riley, D, 1992, New Aerial Reconnaissance in Apulia. *Papers of the British School at Rome*, LX, 291–307
- Rivière, P, 1995, Houses, places and people, community and continuity in Guiana. In J Carsten and S Hugh-Jones (eds), *About the house, Lévi-Strauss and beyond*. Cambridge. Cambridge University Press. 189–205
- Robertson-Mackay, M E, 1980, A 'head and hooves' burial beneath a round barrow, with other Neolithic and Bronze Age sites on Hemp Knoll, near Avebury, Wiltshire. *Proceedings of the Prehistoric Society*, 46, 123–76
- Robinson, D, 1989, The language and significance of place in Latin America. In J A Agnew and J S Duncan (eds), *The power of place. Bringing together geographical and social imaginations*. Boston. Unwin Hyman. 157–184
- Robinson, M A, 1992, Environment, archaeology and alluvium on the river gravels of the South Midlands. In S Needham and M G Macklin (eds) *Alluvial Archaeology in Britain*

- (= Oxbow Monograph 27). Oxford. Oxbow. 197–208
- Rollston, G, 1879, Notes on a skeleton found at Cissbury. *Journal of the Royal Anthropological Institute*, viii, 377–89
- Rowley-Conwy, P, 1982, Forest grazing and clearance in temperate Europe with special reference to Denmark, an archaeological view. In M Bell and S Limbrey (eds), *Archaeological Aspects of Woodland Ecology* (= BAR International Series 142). Oxford. British Archaeological Reports. 199–215
- Rowley-Conwy, P, 1995, Making first farmers younger, The west European evidence. *Current Anthropology*, 36, 2, 346–53
- Rowley-Conwy, P, Zvelebil, M, and Blankholm, H-P, (eds), 1987, *Mesolithic northwest Europe, recent trends*. Sheffield. University of Sheffield
- Rulf, J, 1991, Neolithic agriculture of central Europe – review of the problems. *Památky Archeologické*, 82, 376–84
- Russell, M, 1995, A Reassessment of the “Bronze Age Cemetery-Barrow”, Itford Hill, East Sussex, and its Place in the Prehistory of south Eastern England (= Bournemouth University, Department of Conservation Sciences Monograph 2). Bournemouth. Bournemouth University
- Russell, M, and Rudling, D, 1996, Excavations at Whitehawk Neolithic Enclosure, Brighton, East Sussex, 1991–1993. *Sussex Archaeological Collections*, 134, 39–61
- Russell, M, In Press. Excavations at Mile Oak Farm, East Sussex, 1989–90. A27 Brighton Bypass Excavations. *Institute of Archaeology Monograph*
- Sahlins, M, 1972, *Stone Age economics*. Chicago. Aldine
- Sargent, A, 1983, Exploitation, territory and economy in the Tavoliere of Apulia. In S M Cassano and A Manfredini (eds), *Studi sul Neolitico de Tavoliere della Puglia, indagine territoriale in un, area-campione* (= BAR International Series 160). Oxford. British Archaeological Reports. 223–236
- Scaife, R G, 1995, Pollen analysis, Intertidal site. In T Wilkinson and P Murphy Archaeology of the Essex Coast. Vol. I, The Hullbridge Survey. *East Anglian Archaeology*. 71, 43–51
- Schama, S, 1995, *Landscapes and memory*. London. Harper-Collins
- Sharpies, N, 1991, Warfare in the Iron Age of Wessex. *Scottish Archaeol Review*, 8, 79–89
- Sharpies, N, 1992, Aspects of regionalisation in the Scottish Neolithic. In N Sharpies and A Sheridan (eds), *Vessels for the ancestors*. Edinburgh. Edinburgh University Press. 322–331
- Sheridan, A, 1995, Irish Neolithic pottery, the story in 1995. In I Kinnes and G Varndell (eds), *Unbaked Urns of Rudely Shape* (= Oxbow Monograph 55). Oxford. Oxbow. 5–21
- Sherratt, A, 1981, Plough and pastoralism, aspects of the secondary products revolution. In I Hodder, G Isaac and N Hammond (eds), *Pattern of the past*. Cambridge. Cambridge University Press. 261–305
- Sherratt, A, 1982, The development of Neolithic and Copper Age settlement in the Great Hungarian Plain, Part 1 The regional setting. *Oxford Journal of Archaeology*, 1/3, 287–316
- Sherratt, A, 1983(a), The development of Neolithic and Copper Age settlement in the Great Hungarian Plain, Part 2, Site surveys and settlement dynamics. *Oxford Journal of Archaeology*, 2/1, 13–41
- Sherratt, A, 1983(b), The Neolithic period in Bulgaria in its European context. In A Poulter (ed) *Ancient Bulgaria, Part I*. Nottingham. University of Nottingham Press. 188–198
- Sherratt, A, 1990, The genesis of megaliths, monumentality, ethnicity and social complexity in Neolithic north-west Europe. *World Archaeology*, 22, 2, 147–67
- Shields, R, 1991, *Places on the margin. Alternative geographies of modernity*. London. Routledge
- Silver, T, 1990, *A new face on the countryside. Indians, colonists and slaves in South Atlantic forests*, 1500–1800. Cambridge. Cambridge University Press
- Simmons, I G, 1996, *The Environmental Impact of Later Mesolithic Cultures*. Edinburgh. Edinburgh University Press
- Simmons, I G, and Innes, J B, 1988, The Later Mesolithic Period (6000–5000 bp) on Glaisdale Moor, North Yorkshire. *Archaeological Journal*, 145, 1–12
- Simpson, D D A, 1995, The Neolithic settlement at Ballygalley, Co. Antrim. In E Grogan and C Mount (eds), *Annus Archaeologiae*. Dublin. Organisation of Irish Archaeologists. 37–44
- Simpson, D D A, 1996, The Ballygalley houses, Co. Antrim, Ireland. In T Darvill and J Thomas (eds), *Neolithic houses in northwest Europe and beyond* (= Oxbow Monograph 57). Oxford.

- Oxbow. 123–132
- Sinel, J, 1916, The Neolithic Horizon of Les Mielles in St Ouen's Bay. *Société Jersiaise Annual Bulletin*, 8, 137–146
- Skeates, R, and Whitehouse, R, 1994, *Radiocarbon dating and Italian Prehistory*. British School at Rome. London. Accordia Research Centre
- Skertchley, S B J, 1879, On the manufacture of gun-flints, the methods of excavating for flint, the age of Palaeolithic man, and the connection between Neolithic art and the gun-flint trade. *Memoir of the Geological Survey of England and Wales*. London
- Smith, A G, 1970, The influence of Mesolithic and Neolithic man on British vegetation, a discussion. In D Walker and R G West (eds), *Studies in the vegetational history of the British Isles*. Cambridge. Cambridge University Press. 81–96
- Smith, A G, 1975, Neolithic and Bronze Age landscapes in Northern Ireland. In J G Evans, S Limbrey and H Cleere (eds), *The effect of man on the landscape, The highland zone* (=CBA Research Report 11). London. Council for British Archaeology. 64–73
- Smith, A G, Whittle, A, Cloutman, E W, and Morgan, L, 1989, Mesolithic and Neolithic activity and environmental impact on the South-east fen-edge in Cambridgeshire. *Proceedings of the Prehistoric Society*, 55, 207–251
- Smith, I F, 1971, Causewayed Enclosures. In D D A Simpson (ed) *Economy and Settlement in Neolithic and Early Bronze Age Britain and Europe*. Leicester. Leicester University Press. 89–112
- Soudsky, B, and Pavlû, I, 1972, The Linear Pottery culture settlement patterns in central Europe. In P Ucko, R Tringham and G Dimbleby (eds), *Man, settlement and urbanism*. London. Duckworth. 317–28
- Speck, F G, 1940, *Penobscot man, the life history of a forest tribe in Maine*. London. Oxford University Press
- Stallibrass, S and Hartley, J P, 1996, Slim evidence, A review of the faunal and botanical data from the Neolithic in northern England. In P Frodsham (ed), *Neolithic studies in no-man's land, Papers on the Neolithic of northern England from the Trent to the Tweed*. *Northern Archaeology*, 13/14, 35–42
- Stevenson, A, 1991, Vegetational analysis. In J Chapman (ed), *The Upper Tisza Project. Report to Research Committee*. Newcastle upon Tyne. Unpublished report, 36–38
- Stone, J F S, 1931, A settlement site of the Beaker period on Easton Down, Winterslow, S Wilts. *Wiltshire Archaeological Magazine*. 45, 366–372
- Stone, J F S, 1931, Easton Down, Winterslow, S Wilts, Flint Mine excavation, 1930. *Wiltshire Archaeological Magazine*. 45, 350–365
- Stone, J F S, 1933, Excavations at Easton Down, Winterslow 1931–32. *Wiltshire Archaeological Magazine*. 46, 225–242
- Stone, J F S, 1934, A case of Bronze Age cephalotology on Easton Down in Wiltshire. *Man*. 51–3, 1–5
- Stone, J F S, 1935, Excavations at Easton Down, Winterslow 1933–4. *Wiltshire Archaeological Magazine*. 47, 68–80
- Stone, J F S, 1948, The Stonehenge cursus and its affinities. *Archaeological Journal*, 104, 7–19
- Strachan, D, forthcoming, A cropmark Long Mortuary Enclosure at Orsett. *Essex Archaeology and History*, 27.
- Strathern, M, 1992, Parts and wholes, refiguring relationships in a post-plural world. In A Kuper (ed), *Conceptualising society*. London. Routledge. 75–104
- Stuiver, M, and Reimer, P J, 1986, A computer program for radiocarbon age determination. *Radiocarbon*, 28, 1022–1030
- Szenaszky, G, 1976, *Újabb asatások Békés megyében*. Békéscsaba. Munkacsy Mihály Múzeum
- Taylor, J, 1980, Bronze Age Goldwork of the British Isles. Cambridge. Cambridge University Press
- Taylor, J A, 1975 The role of climatic factors in environmental and cultural changes in prehistoric times. In J G Evans, S Limbrey and H Cleere (eds), *The effect of man on the landscape, the Highland Zone* (=CBA Research Report 11). London. Council for British Archaeology. 6–19
- Taylor, T, 1992, The Gundestrup cauldron. *Scientific American*, 84–89
- Thomas, J, 1987, Relations of production and social change in the Neolithic of north-west

- Europe. *Man*, 22, 405–30
- Thomas, J, 1988, Neolithic explanations revisited, The Mesolithic-Neolithic transition in Britain and South Scandinavia. *Proceedings of the Prehistoric Society*, 54, 59–66
- Thomas, J, 1991, *Rethinking the Neolithic*. Cambridge, Cambridge University Press
- Thomas, J, 1993(a), The hermeneutics of megalithic space. In C Tilley (ed), *Interpretative archaeology*. Oxford. Berg. 73–98
- Thomas, J, 1993(b), Discourse, totalisation and “the Neolithic”. In C Tilley (ed), *Interpretative Archaeology*. Oxford. Berg. 357–94
- Thomas, J, 1996(a), *Time, Culture and Identity*. London. Routledge
- Thomas, J, 1996(b), Neolithic houses in mainland Britain and Ireland – a sceptical view. In T Darvill and J Thomas (eds), *Neolithic houses in northwest Europe and beyond* (= Oxbow Monograph 57). Oxford. Oxbow. 1–12
- Tilley, C, 1994, *The phenomenology of landscape, places, paths and monuments*. Oxford. Berg
- Tilley, C, and Thomas, J, 1993, The axe and the torso, Symbolic structures in the Neolithic of Brittany. In C Tilley (ed), *Interpretative Archaeology*. Oxford. Berg. 225–324
- Tine, A, 1983, *Passo di Corvo e la civiltà neolitica del Tavoliere*. Genova. Sagep
- Tipping, R, 1992, The determination of cause in the generation of major prehistoric valley fills in the Cheviot Hills, Anglo-Scottish border. In S Needham and MG Macklin (eds), *Alluvial Archaeology in Britain* (= Oxbow Monographs 27). Oxford. Oxbow. 111–122
- Tipping, R, 1994, The form and fate of Scotland’s woodlands. *Proceedings of the Society of Antiquaries of Scotland*, 124, 1–54
- Tipping, R, 1996, The Neolithic Landscapes of The Cheviot Hills and Hinterland: Palaeoenvironmental Evidence. *Northern Archaeology*, 13/14, 17–34
- Todorova, H, 1978, *The Eneolithic period in Bulgaria in the 5th millennium BC* (= BAR International Series 49). Oxford. British Archaeological Reports
- Toms, HS, 1927, Sarsens in Sussex. *Sussex County Magazine*, 1, 12, 530–33
- Topping, P, 1981, Hethpool Stone Circle, *Northern Archaeology*, 2: 2, 3–10
- Topping, P, 1992, The Penrith henges, a survey by the RCHME. *Proceedings of the Prehistoric Society*, 58, 249–264
- Topping, P, 1996, Structure and ritual in the Neolithic house, Some examples from Britain and Ireland. In T Darvill and J Thomas (eds), *Neolithic houses in northwest Europe and beyond* (= Oxbow Monograph 57). Oxford. Oxbow. 157–70
- Topping, P, forthcoming, Later Prehistoric Landscapes in the Northumberland Cheviots. In S Ainsworth, D Field and P Pattison (eds), (A Festschrift for Chris Taylor, title to be announced). Oxford. Oxbow Monographs
- Trabaud, L, and Williams, D, (eds), *Cronon, 1983 Changes in the Land, Indian, Colonists, and the Ecology of New England*. New York. Hill and Wang
- Tringham, R, and Krstic, D, 1991, Conclusion, Selevac in the wider context of European prehistory. In R Tringham and D Krstic, (eds), *Selevac – a Neolithic village in Yugoslavia*. *Monumenta Archaeologica* 15. Los Angeles. University of California Press. 567–615
- Tringham, R, Brukner, B, Kaiser, T, Borojevic, K, Bukvic, Lj, Steli, P, Russell, N, Stevanovic, M, and Voytek, B, 1992, Excavations at Opovo, 1985–1987, socioeconomic change in the Balkan Neolithic, *Journal of Field Archaeology*, 19, 3, 351–386
- Trogmayer, O, 1967, Bemerkungen zür Chronologie des Frühneolithikums auf dem Südföld. *A Mora Ferenc Museum Evkönyve*, 1966–67, 35–40
- Tuan, Y F, 1977, *Space and Place*. Minneapolis. University of Minnesota Press
- van Andel, T H, and Runnels, C N, 1995, The earliest farmers in Europe. *Antiquity*, 69, 481–500
- van der Veen, M, 1992, *Crop Husbandry Regimes, An Archaeobotanical Study of Farming in northern England 1000BC AD 500*. University of Sheffield. Sheffield Archaeological Monographs 3
- Van Wagner, C E, 1977, Conditions for the start and spread of crown fires. *Canadian Journal of Forest Research*, 7, 23–34
- Vasić, M M, 1936, *Praistoriska Vinca IV*. Beograd, Universiteta Beograda
- Victoria County History, Oxfordshire, I
- Vogl, R J, 1974, Effects of Fire on Grasslands. In T T Kozlowski and C E Ahlgren (eds) *Fire and Ecosystems*. New York. Academic Press. 139–182.

- Vyner, B E, 1994, The territory of ritual, cross-ridge boundaries and the prehistoric landscape of the Cleveland Hills, northeast England. *Antiquity*, 68, 27–38
- Wade, A, 1922, Ancient Flint Mines at Stoke Down, Sussex. *Proceedings of the Prehistoric Society of East Anglia*, 4, 82–91
- Wainwright, G J, 1971, *Durrington Walls, Excavations 1966–1968* (=Reports of the Research Committee of the Society of Antiquaries of London 29). London. Society of Antiquaries
- Wainwright, G J, 1972, The excavation of a Neolithic settlement on Broome Heath, Ditchingham, Norfolk. *Proceedings of the Prehistoric Society*, 38, 1–97
- Wainwright, G J, 1989, *The Henge Monuments - Ceremony and Society in Prehistoric Britain*. London. Thames and Hudson
- Wainwright, G J, and Evans, J G, 1979, The Woodhenge excavations. In G J Wainwright, *Mount Pleasant, Dorset, Excavations 1970–1971* (=Reports of the Research Committee of the Society of Antiquaries of London 37). London. Thames and Hudson. 71–74
- Wallis, S, and Waughman, M, forthcoming, Archaeology and the Landscape in the Lower Blackwater Valley. *East Anglian Archaeology*
- Warren, S H, Piggott, S, Clark, J G D, Burkitt, M C, Godwin, H, and Godwin, M E, 1936, Archaeology of the submerged land surface of the Essex Coast. *Proceedings of the Prehistoric Society*, 2, 178–210
- Werlen, B, 1993, *Society, Action and Space. An Alternative Human Geography*. London. Routledge
- Weyman, J, 1984, The Mesolithic in North-East England. In R Miket and C Burgess (eds), *Between and Beyond the Walls, Essays on the Prehistory and History of North Britain in Honour of George Jobey*. Edinburgh. John Donald. 38–51
- Wheatley, P, 1971, *The pivot of the four quarters*. Chicago and Edinburgh. Aldine Publishing Company and Edinburgh University Press
- Whitehouse, R, 1984, Social organisation in the Neolithic of Southeast Italy. In W H Waldren, R Chapman, J Lewthwaite and R C Kennard (eds), *Early Settlements in the Western Mediterranean Islands and their Peripheral Areas* (=BAR International Series 229). Oxford. British Archaeological Research. 1109–1133
- Whitehouse, R, 1986, *Situculosa Apulia revisited*. *Antiquity*, 60, 36–44
- Whitehouse, R, 1987, The first farmers in the Adriatic and their position in the Neolithic of the Mediterranean. In J Guilaine, J Courtin, J-L Roudil and J-L Vernet (eds), *Premières communautés en méditerranée occidentale*. Paris. CNRS. 357–365
- Whitehouse, R, 1992, *Underground Religion. Cult and Culture in Prehistoric Italy*. London. Accordia Research Centre
- Whittle, A, 1977, *The earlier Neolithic of southern England and its continental background* (=BAR Supplementary Series 35). Oxford, British Archaeological Reports
- Whittle, A, 1988, *Problems in Neolithic archaeology*. Cambridge, Cambridge University Press
- Whittle, A, 1990, A model for the Mesolithic-Neolithic transition in the upper Kennet valley, north Wiltshire. *Proceedings of the Prehistoric Society*. 56, 101–111
- Whittle, A, 1996, *Europe in the Neolithic, the creation of new worlds*. Cambridge, Cambridge University Press
- Whittle, A, Keith-Lucas, M, Milles, A, Noddle, B, Rees, S and Romans, J C, 1986, *Scord of Brouster* (=OUCA Monograph 9). Oxford. Oxford University Committee for Archaeology
- Whittle, A, Atkinson, R J C, Chambers, R, and Thomas, N, 1992, Excavations in the Neolithic and Bronze Age Complex at Dorchester-on-Thames, Oxfordshire. *Proceedings of the Prehistoric Society*, 58, 143–210
- Wilkinson, T J, and Murphy, P, 1986, Archaeological Survey of an intertidal zone. The submerged landscape of the Essex Coast, England. *Journal of Field Archaeology*, 13, 177–94
- Wilkinson, T J, and Murphy, P, 1995, Archaeology of the Essex Coast I. The Hullbridge Survey. *East Anglian Archaeology*. 71
- Wilkinson, T J, and Murphy, P, forthcoming, The Archaeology of the Essex Coast II, Excavations at the Stumble. *East Anglian Archaeology*
- Willerding, U, 1983, Zum ältesten Ackerbau in Niedersachsen. In G Wegner (ed), *Frühe Bauemkulturen in Niedersachsen*. Oldenburg. Verlag Isensee. 179–219
- Willet, E, 1880, On Flint Workings at Cissbury. *Archaeologia*, 45, 337–48

- Williams, R, 1973, *The country and the city*. London. Chatto and Windus
- Williams, R, 1979, *Politics and letters*. London. New Left Books
- Williams, R, 1984, Between country and city. In R Mabey (ed), *Second nature*. London. J Cape. 209–219
- Williams-Thorpe, O, Warren, S E, and Nandris, J, 1984, The distribution and provenance of archaeological obsidian in central and eastern Europe. *Journal of Archaeological Science*, 11, 183–212
- Willis, K, in press, The impact of early agriculture upon the Hungarian landscape. In J Chapman and P Dolukhanov (eds) *Landscapes in Flux. Colloquenda Pontica*
- Wilson, P, 1988, *The domestication of the human species*. New Haven, Yale University Press
- Woodburn, J, 1982, Egalitarian societies. *Man* 17, 431–51.
- Woodburn, J, 1988, African hunter-gatherer social organisation, is it best understood as a product of encapsulation? In T Ingold, D Riches and J Woodburn (eds), *Hunters and gatherers 1. History, evolution and social change*. Oxford. Berg. 31–64
- Woodcock, A, and Woolley, A, 1986, Prehistoric Stone Implements from Sussex and their Petrological Identification. *Sussex Archaeological Collections*, 124, 9–23
- Woodman, P C, 1985, Prehistoric settlement and environment. In KJ Edwards and W P Warren (eds), *The Quaternary History of Ireland*. London. Academic Press. 251–278
- Woodman, P C, 1992, Filling in the spaces in Irish prehistory. *Antiquity*, 66, 295–314
- Woodman, P C, and Johnston, G, 1996, Excavations at Bay Farm 1, Carnlough, Co. Antrim, and the study of the ‘Larnian’ technology. *Proceedings of the Royal Irish Academy*, 96C, 137–235
- Woodman, P C, and O’Brien, M, 1993, Excavations at Ferriter’s Cove, Co. Kerry, An interim statement. In E Shee Twohig and M Ronayne (eds), *Past perceptions, The prehistoric archaeology of south-west Ireland*. Cork. Cork University Press. 25–34
- Young, R, 1994, Destruction is only one facet..., A Study of Formation Processes and the Generation of Distribution Patterns for Later Prehistory in Northern England. *Landscape History*, 16, 5–16
- Zvelebil, M, 1994, Plant use in the Mesolithic and its role in the transition to farming. *Proceedings of the Prehistoric Society*, 60, 35–74
- Zvelebil, M, (ed) 1986, *Hunters in transition*. Cambridge, Cambridge University Press.
- Zvelebil, M, and Rowley-Conwy, P, 1984, Transition to farming in northern Europe, A hunter-gatherer’s perspective. *Norwegian Archaeological Review*, 17, 104–28